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ABSTRACT

A major purpose of the National Longitudinal Study of the High School Class of 1972 (NLS) was to provide a data base for studies concerned with the relationship between high school experience and experience in the years immediately following graduation. This methodological report is designed to facilitate use of the data base. The sample was designed to be as representative as possible of all twelfth graders in the United States in 1972 and included over 18,000 participants from 1,069 schools. The first followup questionnaire asked about educational, employment, and/or military status in October 1972 and 1973. Repeated efforts resulted in a 61% followup response. Two data files were developed: a master file and a release file. Because the NLS sample was stratified, multistage, and clustered, a system of weights was developed to provide unbiased sample estimates; sampling error estimates were developed. Various composite scores were developed for academic ability, socioeconomic status, and psychological attributes. Two methodological studies were concerned with the problem of nonparticipating schools. The final chapter describes some of the results of studies based on the NLS data. The appendices contain an annotated list of 25 followup studies and examples of questionnaires used in the followup. (CTM)

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Center for Educational Research and Evaluation

Project No. 22U-884

March 1976

Longitudinal Studies of Educational Effects

National Longitudinal Study of the High School Class of 1972

FIRST FOLLOW-UP SURVEY

FINAL METHODOLOGICAL REPORT

J. P. Bailey, Jr., Project Director

prepared for

National Center for Education Statistics
U.S. Department of Health, Education, and Welfare

Contract No. OEC-0-73-6666

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FOREWORD

The National Longitudinal Study of the High School Class of 1972 is of unusual potential and significance for many reasons. Among these are: the advances in monitoring and operational procedures that have yielded the rather unusual degree of success in maintaining the original sample over a substantial time span; the fact that its necessary support comes from a number of different federal agencies or departments, indicating a remarkable spirit of cooperation of different charges and vested interests toward efficiency and mutual advantage; and the amazing tolerance of the young people involved who give such a detailed and complete account of themselves in response to the postman or the interviewer.

But, the most single import of the activity is its testimony that the longitudinal analysis has truly come of age in the service of public, professional, and societal interests, through its adoption and perfection by the National Center for Education Statistics of the Department of Health, Education, and Welfare, and of its contractors. The Research Triangle Institute has indeed been priviledged to share in this work through the activity reported herein.

This is the formal report of activities conducted in carrying out the study. In this sense it is methodological, historical, and descriptive in nature, rather than technical and analytical. The numerous reports of the latter character, produced in conjunction with the study over a period of time, are listed and abstracted in appendix A and described in the text within appropriate chapters.

J. P. Bailey
Director
National Longitudinal Study

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Director
Center for Educational Research and Evaluation

ACKNOWLEDGMENT

The principal credit for the success of this study must go to the more than 20,000 Class of 1972 respondents who have continued to participate in this mammoth effort. These respondents deserve--and have received--the very best efforts of many dedicated individuals at NCES and RTI to turn their answers into a sound data base for the hundreds of policymakers and researchers who will be needing and using it in the years to come.

At the National Center for Education Statistics, Dr. K. A. Tabler provided the collaborative encouragement and support as the first follow-up project officer to make the study the success it is. Elmer Collins, Bill Fetters, and Bill Oliveri also willingly gave their operational and technical assistance.

Among the many consultants whose ideas have permeated the study, Bruce Eckland, professor of Sociology, University of North Carolina at Chapel Hill, has been most insightful and knowledgeable in his continuing involvement. At Measurement Research Center, John O'Neill and at the Bureau of the Census, Bob Mangold and Greg Russell were most helpful.

At Research Triangle Institute, particular thanks go to Dr. J. A. Davis, who as director of the Center for Educational Research and Evaluation and as the first NLS project director, provided the leadership to weld together the initial first follow-up NLS team. Key leaders in that team included Bob Thornton (computer support), Don Bates and Don King (survey operations), Paul Moore (sampling), and George Dunteman (analysis).

The final methodological report is not authored in its entirety by any one person. It is a compilation of reports, papers, and memoranda growing out of the study over a period of years and put together primarily by Robin Talbert, research assistant to the project director. Tony Conger, Sam Peng, and John Riccobono were particularly helpful in abstracting materials from reports they authored. Expert editorial assistance was given by Kay Marr, and Jackie Amyette did a superb job in typing the report.

Special thanks are due to the NLS secretary at RTI, Frances Heald, who has most capably maintained the files and correspondence and who has had major roles in supporting project direction.

TABLE OF CONTENTS

I. OVERVIEW: THE NATIONAL LONGITUDINAL STUDY OF THE CLASS OF 1972
- A. Data Needs of Policymakers and Researchers 1-1
- B. Data Collections, 1972-75 1-2
  - 1. Base-Year Student Survey Instruments 1-2
  - 2. School and Counselor Survey Instruments 1-3
  - 3. Follow-Up Surveys 1-3
- C. Uses for NLS Data 1-4
  - 1. To Clarify Choices and Alternatives 1-4
  - 2. To Trace Progess 1-5
  - 3. To Provide a Data Base 1-5
  - 4. To Disseminate Information 1-5
- D. Objectives of the First Follow-up 1-6
- E. Coordination of First Follow-up Activities 1-7

II. SAMPLE DESIGN AND SURVEY PARTICIPATION
- A. Basic Design 2-1
- B. Base-Year Participation, 1972 2-1
- C. Resurvey Plans 2-3
- D. Resurvey Participation, 1973-74 2-4
- E. First Follow-up Participation, 1973-74 2-4

III. DEVELOPMENT OF THE FIRST FOLLOW-UP QUESTIONNAIRES
- A. Modifying a Model 3-1
- B. Defining the Questionnaire Objectives 3-1
- C. Field Testing and Revising the Initial Version 3-7
- D. Grouping the Items 3-8
  - 1. Section A--General Information 3-9
  - 2. Section B--Education and Training 3-10
  - 3. Section C--Civilian Work Experience 3-10
  - 4. Section D--Military Service 3-10
  - 5. Section E--Information about the Past 3-10
  - 6. Section F--Background Information 3-11
- E. Selecting the Key-Response Items 3-11

IV. MAXIMIZING PARTICIPATION AND RESPONSE
- A. Introduction 4-1
- B. Newsletters 4-1
- C. Tracing Activities 4-2
- D. Data Collection Activities 4-3
  - 1. Mail-Return Responses 4-3
  - 2. Effects of Mailouts 4-5
  - 3. Personal Interviews 4-7
  - 4. Checks on Data Quality 4-8
- E. Telephone Survey 4-10
- F. Special Study 4-10
- G. Resurvey School Data Collection 4-12
- H. First Follow-Up Data Collection Summary 4-13
- I. Recommendations 4-13
  - 1. Simplify the Questionnaire 4-14
  - 2. Prepare an Advisory Letter 4-14
  - 3. Use Mailgrams and Prompting Post Cards 4-14
  - 4. Improve the Newsletters and ID Cards 4-14
  - 5. Consider Other Training Aids 4-14

TABLE OF CONTENTS (cont.)

V. PREPARATION OF THE NLS DATA FILE
- A. Introduction 5-1
- B. Premachine Editing 5-1
- C. Error Coding 5-2
- D. Machine Editing 5-3
  - 1. Range Checks 5-3
  - 2. Consistency Checks 5-5
  - 3. Routing Checks 5-5
- E. The NLS Data File Indices 5-6
  - 1. Quality Indices 5-6
  - 2. Analytic Indices 5-8
- F. The NLS Data Files 5-9

VI. WEIGHT CALCULATIONS
- A. Introduction 6-1
- B. Unadjusted Student Weights 6-1
  - 1. School Selection Probabilities 6-2
  - 2. Student Weights 6-2
- C. Nonresponse Adjustments 6-3
  - 1. Classifier Variables 6-3
  - 2. Weights Adjustment Formulae 6-4
  - 3. Adjusted Weight Sets 6-4

VII. SAMPLING ERROR ESTIMATES
- A. Methodology Considerations 7-1
- B. Standard Errors of Percentages 7-2
- C. Generalized Standard Errors of Estimated Percentages 7-5
- D. Standard Errors for Means 7-8

VIII. COMPOSITE VARIABLES FOR STUDYING STUDENT PARTICIPANTS
- A. Introduction 8-1
- B. Ability Index 8-1
- C. SES Index 8-2
- D. Psychological Scales 8-8
  - 1. Self-Concept and Locus of Control 8-8
  - 2. Life Goals 8-10
- E. Classification Variables 8-11
  - 1. Planning States, 1972 8-11
  - 2. Activity States, 1972 and 1973 8-12
  - 3. Subpopulation Variables 8-13

IX. METHODOLOGICAL STUDIES
- A. Introduction 9-1
- B. Reliability of Retrospective Data 9-2
- C. Bias from School Nonresponse (Methodology Overview and Summary Findings) 9-4
  - 1. Introduction 9-4
  - 2. Findings and Conclusions 9-6
    - a. Findings 9-6
    - b. Conclusions 9-9
- D. Sample Design Efficiency Studies 9-12
  - 1. Efficiency Study of NLS Base-Year Design 9-12
  - 2. Effects of Stratification, Clustering, and Unequal Weighting on the Variances of NLS Statistics 9-15

TABLE OF CONTENTS (cont.)

X. DESCRIPTIVE ANALYSES
A. Introduction..... 10-1
B. Educational and Employment Statuses, 1973-74..... 10-1
1. Enrollment in Postsecondary Institutions..... 10-1
2. Participation in the Labor Force..... 10-3
3. Application of Job Training..... 10-5
C. Educational and Employment Plans, 1972-73..... 10-5
1. Fulfillment of Plans..... 10-6
2. Transitions in Activities..... 10-7
D. Self-Esteem, Locus of Control, and Life Goals..... 10-8
1. Self-Esteem Shifts..... 10-9
2. Locus-of-Control Correlates..... 10-9
3. Life Goal Orientations..... 10-10
E. Financial Aid Distribution and Impact..... 10-10
1. Plans in Spring 1972..... 10-11
2. Fulfillment of Plans..... 10-12
3. Status in 1972-73..... 10-13

LIST OF TABLES

Table		Page
2-1	Base-Year School Participation Data	2-2
2-2	Base-Year Student Participation Data	2-2
2-3	Base-Year Student Response Rates	2-3
2-4	Resurvey Student Response Rates	2-4
2-5	Number of Participating Schools, by Survey	2-5
2-6	Composition of the First Follow-Up Sample Membership	2-6
3-1	First Follow-Up and Base-Year Questionnaire Numbers	3-9
4-1	Telephone Tracing Cases, 1973-74	4-2
4-2	Overall Mail Returns and Response Rates, 1973-74	4-3
4-3	Mail Response Rates of Subpopulations	4-6
4-4	Effects of Mailouts on Response Rates	4-5
4-5	Response Rate, Weeks after Mailings	4-7
4-6	Telephone Follow-Ups of Mail-Return Questionnaires	4-9
4-7	Telephone Follow-Ups of Census Questionnaires	4-9
4-8	Special Study Mail-Return Response Rates as of January 4, 1974	4-12
5-1	Out-of-Range Responses to Free-Response Questions Calling for Numeric Answers	5-4
5-2	Quality of Individual Responses to First Follow-Up Questionnaire	5-7
5-3	Number of Responses by Subpopulations to Survey Instruments	5-10
6-1	Schools in the Final NLS Sample	6-1
6-2	Groups Defined by Questionnaire Responses	6-5
6-3	Weights Appropriate for Data Sets and Variables	6-6
7-1	Comparison of Various Assumptions for the Prediction Model 7-1	7-7
7-2	Design Effects by Domain for the Proportions	7-9
7-3	Design Effects by Question for the Proportions	7-10
7-4	Generalized Standard Errors of Estimated Percentages	7-13
7-5	Standard Errors for the Mean Score	7-14
7-6	Design Effects for the Mean Score	7-15
8-1	Weights Assigned to the Components and Factors.	8-2
8-2	Duncan SEI Scores for Base-Year Q.25	8-6

LIST OF TABLES (cont.)

Table		Page
8-3	Principal Components Loadings for B-Y Q.94 Items	8-7
8-4	Weighted Two-Factor Solution: Self-Concept and Locus of Control	8-9
8-5	Weighted Base-Year Responses: Self-Concept and Locus of Control	8-9
8-6	Three-Factor Solution: Life Goals	8-10
8-7	Weighted Base-Year Responses: Life Goals	8-11
9-1	Frequency of Significant School Nonresponse Biases in Selected B-Y Estimated and the Frequency of Such Biases that Might Be Erroneously Declared Significant	9-7
9-2	Bias and Confidence Levels for B-Y Estimates Derived from BSYRQ2	9-10

LIST OF FIGURES

Figure		Page
1-1	Organization and Staffing Chart for the First Follow-Up . . .	1-9
3-1	General Educational Development Model	3-2
3-2	Conceptual Model of the NLS	3-3
4-1	Cumulative Response to all Mailout Types, 1973-74	4-4
4-2	Special Study Plan, 1973-74	4-11
7-1	Graph of Design Effects by Domain for the Proportions	7-11
7-2	Graph of Design Effects by Questions for the Proportions . .	7-12
8-1	SES Derivation Flow Chart	8-5
8-2	Supplementary Information Questionnaire Administered by Interviewers	8-14

Chapter I

OVERVIEW: THE NATIONAL LONGITUDINAL STUDY OF THE CLASS OF 1972

A. Data Needs of Policymakers and Researchers

In 1968 the National Center for Education Statistics (NCES) conducted a survey to determine the data needs of educational policymakers and researchers. Survey responses indicated needs for data that would allow student educational-vocational experiences to be compared with later educational-occupational outcomes. This finding provided the impetus for NCES to begin planning the first of a series of national longitudinal studies.

Although the educational-vocational development of young people after high school has been studied, necessary information is lacking for at least three reasons. First, social and economic factors change over time and affect drastically the educational-vocational progress of young people; for example, the Project Talent[1] longitudinal survey of the early 1960's is not relatable to the open-door colleges, modal proportions of minorities entering colleges, and so forth, of the 1970's. Second, many studies are concerned with only one class of antecedent variables for explaining later development, and thus fail to take account of interventions emanating from current federal priorities and to include representative samples with sufficient numbers of important subgroups (e.g., racial-ethnic minorities). Third, many studies are primarily concerned with developing models or theories of behavior (e.g., Donald Super's Career Pattern Study)[2]--an objective not alien to but insufficient for the objectives of the National Longitudinal Study of the Class of 1972 (NLS). Behavioral studies have given, however, an excellent basis for perfecting the NLS design. For indeed, the continuing planning has relied considerably on the review and synthesis of the findings of studies, such as the one by UCLA's Evaluation Center for USOE[3], that apply to educational-vocational development.

In April 1970 educational researchers and administrators met with Federal officials in Washington, D.C. The NLS reflects their guidance and the data needs of NCES and several USOE agencies: the Office of Planning, Budgeting, and Evaluation; the Bureau of Postsecondary Education; the Bureau of Occupational and Adult Education; and the Bureau of Education for the Handicapped. Four advisory committees guided the NLS planning. One committee was composed of research experts and representatives of educational organizations; two others were made up of officials of state education agencies; and the fourth, an

internal USOE users committee, represented offices and bureaus of the Department of Health, Education, and Welfare (DHEW).

Later in 1970, the basic survey planning was contracted to RTI and the sample planning and design to WESTAT, Inc.[4] After extensive planning, which included the design and field testing of survey instrumentation and procedures, the first full-scale NLS survey was initiated in the spring of 1972.

B. Data Collections, 1972-75

In 1972, a national probability sample of more than 18,000 seniors from 1,070 public, private, and church-affiliated high schools participated in the base-year survey conducted by Educational Testing Service (ETS).[5]

1. Base-Year Student Survey Instruments

Each student in the sample was asked to complete a Student Questionnaire containing 104 questions distributed over 11 sections. The questions relate to personal-family background, educational and work experiences, plans, aspirations, attitudes, and opinions. Students were given the option of completing the questionnaire in school or taking it home to get assistance from their parents. Those selected for the survey were informed in the questionnaire and in a newsletter of the voluntary nature of participation, of their prerogative to skip questions they considered personally sensitive, and of the objectives and importance of the study for future educational benefits. Participants were assured that their responses would be treated as confidential, that they would remain anonymous, and that data collected by the survey would be published only in aggregate form.

Each student was also asked to complete a 69-minute Test Book designed to measure both verbal and nonverbal abilities. The book contained six tests which are described briefly below in the order of administration.

Vocabulary. A brief test using synonym format. The items were selected to avoid academic or collegiate bias and to be on an appropriate level of difficulty for the 12th grade population. (15 items, 5 minutes)

Picture number. A test of associative memory consisting of drawings of familiar objects, each paired with a number. The student, after studying the picture-number pairs, was asked to recall the number associated with each object. (30 items, 10 minutes)

Reading. A test based on 100-200 word passages with questions concerning various reading skills (analysis, interpretation) and focused on straightforward comprehension. With the vocabulary test, it provides a means to derive a verbal score which can allow links to the normative data available for SAT. (20 items, 15 minutes)

Letter groups. A test of inductive reasoning requiring the student to draw general concepts from sets of data or to form and try out hypotheses in a nonverbal context. The items have five groups of letters; four groups share a common characteristic. The student indicates which group differs from the others. (25 items, 15 minutes)

Mathematics. Quantitative comparisons requiring the student either to indicate which of two quantities is greater or to assert equality or the lack of data for comparing. This item is relatively quickly answered and provides measures of basic competence in mathematics. (25 items, 15 minutes)

Mosaic comparisons. A test of perceptual speed and accuracy with items requiring that small differences be detected between pairs of otherwise identical mosaics or tile-like patterns. A deliberately speeded test, it has three separately timed sections of increasingly complex patterns. (116 items, 9 minutes)

From each student's School Record Information Form (SRIF), data were obtained on the high school curriculum, grade point average, credit hours in major courses, and position in ability groupings (if applicable), remedial-instruction record, involvement in certain federally supported programs, and scores on standardized tests.

2. School and Counselor Survey Instruments

Two other data collection instruments were the School Questionnaire and the Counselor Questionnaire. Survey administrators completed the School Questionnaire, which provided information on--

Programs and students. Grade structure, enrollment by curriculum, programs for the handicapped and disadvantaged, teaching, absence and dropout rates, racial-ethnic makeup, college recruitment efforts;

Resources. Participation in federal programs, teacher turnover, percentage of teachers with advanced degrees, library and other facilities, ages of buildings, nearness to postsecondary institutions; and

Grading systems. Form of the system in use, plus a table of grade equivalents.

A maximum of two counselors in each school filled in the Counselor Questionnaire with data on training, experience, activities, assignments, methods, workload, and resources.

3. Follow-Up Surveys

In the summer of 1973, 4,315 students who did not participate in 1972 were contacted ("resurveyed") to be added to the planned follow-up sample.

In October of 1973, the first follow-up survey was begun by RTI. Of the 222,654 young adults expected to participate, 94.2 percent completed the first follow-up instruments--61.8 percent by mail and 32.4 percent by personal interviews. Participants were asked in First Follow-up Questionnaires where they were in October 1973 and what they were doing with regard to work, education,

and/or training. Similar questions were also asked for the same period in 1972 to facilitate the tracing of progress since high school and the defining of factors that affect that progress. The first follow-up data collection was completed in April of 1974. (Content of the First Follow-Up Questionnaire is covered in detail in Chapter III of this report; first follow-up data collection activities are discussed in Chapter IV.)

The second follow-up survey was begun by RTI in October 1974, with data collection completed in April of 1975. Plans are underway for a third follow-up of the class of 1972 in the fall of 1976.

C. Uses for NLS Data

Periodically, data are being obtained from members of the class of 1972 and added to their individual histories--that is, to their experiences, activities, attitudes, satisfactions, environments, and plans--as they move into the critical years of early adulthood. These data will fill widespread needs of the educational community--researchers and administrators in the elementary, secondary, and postsecondary educational-occupational systems. The data will provide insights into identifying and understanding the major branching or decision points that affect the educational and life patterns in the immediate postsecondary period. Significant linkages of path choices can be traced; associated transition probabilities can be estimated; and insight into the relative importance of factors which determine these probabilities can be realized.

1. To Clarify Choices and Alternatives

Collectively, the individual histories should provide quantitative data for policymakers, planners, and researchers about various issues:

- The demands for postsecondary education and training, including vocational/technical education;
- The abilities and characteristics of actual and potential users of postsecondary education;
- The extents to which earlier plans and aspirations persist over time and are eventually fulfilled;
- The reasons why young adults change their plans and fail to accomplish earlier objectives;
- The impacts of federally funded postsecondary programs on initial choices and later activities and plans;
- The factors influencing young people in choosing their lifework and in determining success and satisfaction in this work;
- The extents to which educational experiences have prepared them for their work;
- The characteristics and abilities of those making occupational choices and the reasons why choices are made;

- The impacts of high school experiences, curriculums, peer-group aspirations, guidance counseling, and so forth, on initial educational and occupational plans and on perseverance and success in achieving them;
- Young adults' awareness of educational and occupational alternatives, their perceptions of options open to them, and the extent to which they have been limited by lack of information; and
- Financial considerations in setting low-aspiration goals and in failing to meet high-aspiration goals.

2. To Trace Progress

The primary NLS purpose is to discover what happens to young people after they leave high school and to relate this information to their prior educational experiences and their personal and biographical characteristics. Ultimately, the study will lead to a better understanding of the developments of students as they pass through the American educational system and of the complex factors associated with individual educational and career outcomes. Such information is essential as a basis for effective planning, implementation, and evaluation of federal policies and programs designed to enchance educational opportunities and achievements and to upgrade occupational attainments and career outcomes.

3. To Provide a Data Base

The major NLS objectives are to provide a data base for policy decisions that may guide federal contributions through the nation's educational system to the fullest development of human and material resources and to provide social scientists and scholars with a rapidly enriching data base that no one of them could afford but all can use in pursuit of professional interests. The data base itself, as it now exists and as it is updated, will be available to interested researchers for their own studies.

4. To Disseminate Information

Summaries and analyses of data are being written up in periodic reports to be issued by DHEW and made available to the educational community to relate and expound on the concepts of the objectives here described. Reports focused on single issues targeted for specific groups will be designed for rapid dissemination. Appendix A to this final report lists those reports prepared by the contractor which relate to the first follow-up. Chapter X summarizes some of the most salient findings.

D. Objectives of the First Follow-Up

The 1973-74 first follow-up survey included data collection, data transformation, preliminary data anlaysis and interpretation, and the making of survey recommendations for the 1974-75 second follow-up. The overall aim of these activities was to satisfy the broad, long-range NLS objectives:

1. To assess the demands for postsecondary education, including adult, vocational, and technical; the characteristics of students going on; where they go; the factors inhibiting the realization of educational aspirations; and the characteristics of and alternatives pursued by those who do not go on.

2. To determine what types of students make what educational and/or occupational choices--for the purpose of establishing meaningful flow data, understanding the chain of decisions that shape an individual's education, training, and launching of a career, and establishing the relationships needed for predictions.

3. To develop means for assessing how educational experiences, personal influences, and social attitudes have led the graduated student to the point at which he finds himself and for evaluating the extent to which these are related to his decisions about occupational choice, military service, and vocational, technical, and higher education.

4. To determine how aware students are of postsecondary education and employment alternatives and the options still open to them; how these were influenced by counseling; to what extent institutional and federally funded recruiting projects affected postsecondary school choices and retention; how employment opportunities can influence their effectiveness; and to what extent the lack of information about postsecondary opportunities (either educational or occupational) limits their aspirations.

5. To determine the influence of student ability on postsecondary choices and to associate the choices with test scores, the student's perception of his own abilities, and his class standings.

6. To relate low-aspiration choices for postsecondary education to the principal obstacles perceived by the student, especially financial obstacles, and to determine profiles of the student's knowledge of programs of financial aid, their applicability to his situation, and his intention to take advantage of them.

7. To follow the educational progress of students and those terminating early to see how high school experiences, curriculum patterns, and financial and other factors are associated with postsecondary career choices and perseverance and success in them and to identify the factors associated with "dropping out" and changing jobs after different intervals.

8. To provide from the cohort study identifications of subpopulations such as high achievers with limited financial resources, disadvantaged minority groups, and students in junior colleges and vocational and technical schools and to investigate interactions and influences between and among individuals that will shape their futures.

9. To refine the means and methods of assembling, merging, and maintaining data on large, diverse samples of highly mobile populations and to relate these techniques to other fields.

10. To investigate the consistency of patterns apparent in the analysis of base-year data; identify new patterns and/or changes in established patterns for further investigative emphases; and define areas for emphases in subsequent follow-ups.

E. Coordination of First Follow-Up Activities

The RTI staff assigned to NLS for the first follow-up activities of 1973-74 was under the leadership of the project director and director of the Center for Educational Research and Evaluation (CERE), Dr. J. A. Davis. Responsible for the day-to-day coordination of all phases of the study was Dr. J. P. Bailey, Jr., who was appointed project director in July of 1975.

The NLS tasks described in the request for proposal and in the proposal itself were grouped by RTI into the three components--survey operations, computer support, and instrumentation and analysis--with experienced senior personnel in charge of each. Figure 1-1 shows the organization and the staffing.

Coordination and communication were maintained by weekly staff meetings; task leaders reported progress and problems, and the two directors set objectives and resolved difficulties and conflicts. To maximize responsiveness, all communications with NCES (especially those by telephone) were made the subject of NLS contact reports, which were immediately distributed internally.

Measurement Research Center (MRC) at Iowa City, Iowa, a division of Westinghouse Learning Corporation, was the subcontractor for the printing and distributing of study materials. Mr. John O'Neill, the MRC/WLC project coordinator, worked closely with RTI project directors on the instrument format and design and with the task leader for survey operations, Mr. D. A. King, on distribution (e.g., quantities, dates, and mailing lists).

The Bureau of the Census conducted the field interviews of those sample members who did not respond by mail. Mr. King was the primary liaison with key Bureau personnel, namely Mr. Mangold and Mr. Russell.

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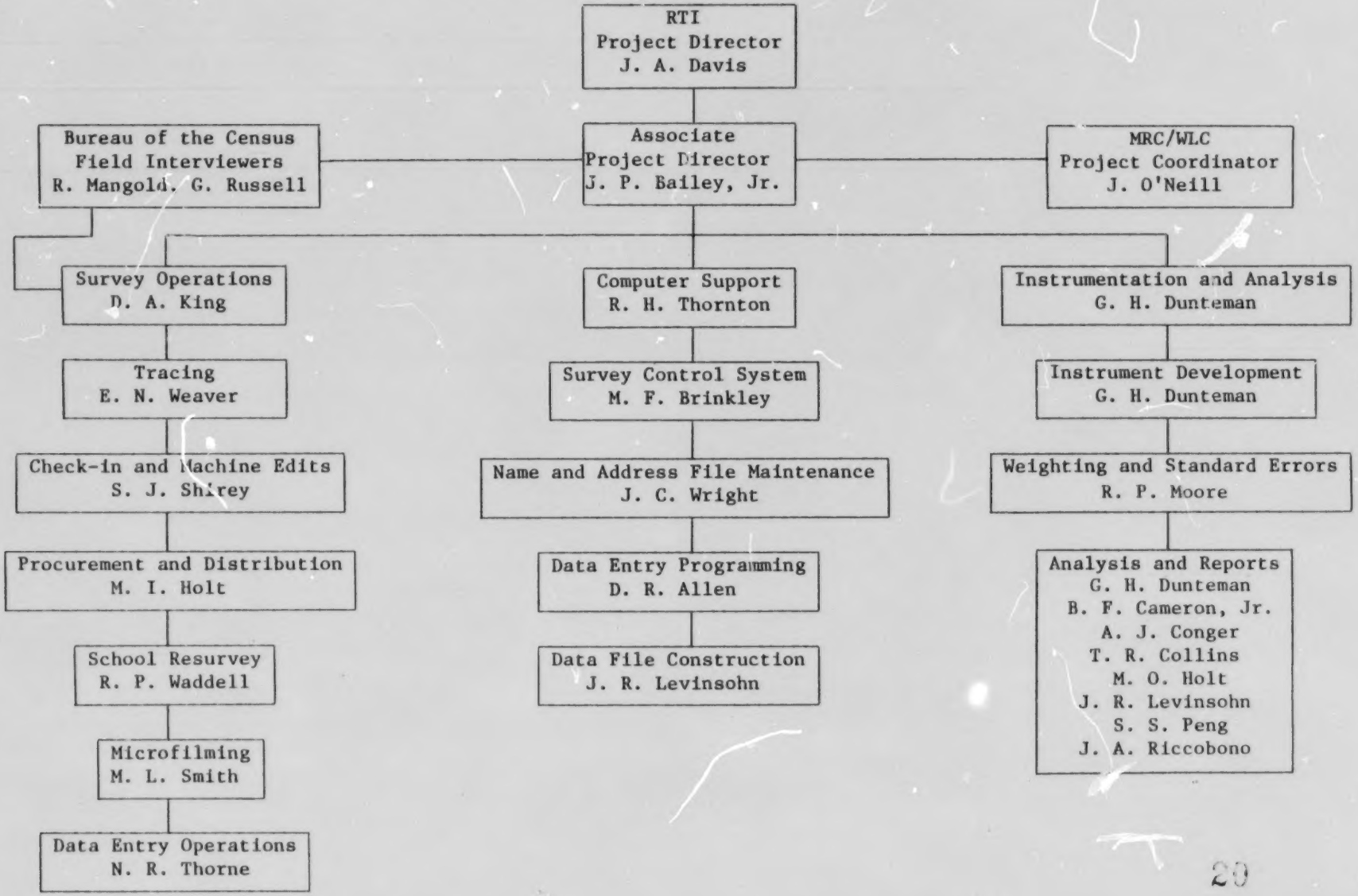
Figure 1-1. Organization and Staffing for the First Follow-Up



Chapter II

SAMPLE DESIGN AND SAMPLE PARTICIPATION

A. Basic Design

All eligible 1972 twelfth graders enrolled in all public, private, and church-affiliated high schools in 50 States and the District of Columbia made up the population to be sampled for the NLS base year. The survey plan for selecting from geographical areas was a deeply stratified two-stage probability sample design with schools as first-stage sampling units and students as second-stage units. The sample was designed and selected by WESTAT, Inc.[1]

The school sampling frame, constructed from computerized school files maintained by USOE and by the National Catholic Education Association, was stratified into 600 final strata based on the following variables:

- Type of control (public or nonpublic),
- Geographic region (Northeast, North Central, South, and West),
- Grade 12 enrollment (< 300; 300-599; ≥ 600),
- Proximity to institutions of higher learning (3 levels),
- Percentage minority group enrollment (8 levels),
- Income type and level of the community (2 types), and
- Degree of urbanization (10 levels).

Schools in low-income communities and schools with high proportions of minority group enrollments were selected and assigned probabilities twice as large as those used for the other schools to increase the numbers of disadvantaged students in the sample. Schools in the smallest grade 12 enrollments (< 300 seniors) were selected with probabilities proportional to their estimated numbers of seniors and without replacement; schools in the remaining grade 12 enrollment strata were selected with equal probabilities and without replacement. Within each of the 600 strata, four schools were selected; then two of the four were designated as the primary selections (2 x 600 = 1,200) and the other two were retained as backups (1,200) to be used in the sample if one or both of the primary schools did not cooperate (e.g., refused, ineligible). From each school, 18 students and 5 alternate students were sampled with equal probabilities and without replacement.

B. Base-Year Participation, 1972

The sample design involved 1,200 primary sample schools and a target sample of 21,600 students (18 per school). The task of collecting base-year data was

Table 2-1. Base-Year School Participation Data

Sample Schools	Primary Sample Schools		Participating Schools	
	Number	Percent	Number	Percent
Primary sample				
Participants	948	79.0	948	88.7
No senior students	21	1.8	--	--
Nonparticipants	231	19.2	--	--
Backup sample				
"Extra" in base year	--	--	26	2.4
Other participants	--	--	95	8.9
Total	1,200	100.0	1,069	100.0

contracted by NCES to Educational Testing Service (ETS) of Princeton, New Jersey.[2] Of the 1,200 schools, 948 participated, 21 had no senior students enrolled, and 231 either refused to or could not participate because the request was received too late in the school year (Table 2-1). A participating school was defined as one in which at least one Student Questionnaire, Test Book, or Student Record Information Form (SRIF) was completed.

Backup schools were also established as a part of the sample design as replacements for nonparticipating primary sample schools. In the base year, 121 backup schools participated; 26 of these were termed "extra" because both primary sample schools from that stratum also participated. In the 1972 survey, there were 1,069 participating schools.

Within the 1,069 schools, 19,144 students were sampled; these included the 18 eligible students per school and the alternates used to replace noneligibles. Of the 19,144, 95 percent participated (Table 2-2) by completing one or more

Table 2-2. Base-Year Student Participation Data

Sample Students	Number of Students in 1,069 Schools		
	Total	Average per School	Percent
Participants	18,143	16.97	94.8
Nonparticipants	1,001	0.94	5.2
Total	19,144	17.91	100.0

Table 2-3. Base-Year Student Response Rates

Survey Instrument	Number Completed	Percent of Sample Students*	Percent of Participating Students**
SRIF	18,110	94.6	99.8
Student Questionnaire	16,083	87.1	92.0
Test Book	15,863	82.9	87.4

*19,144 in 1,069 participating schools. **18,143 in the 1,069.

survey instruments. The average was 17 participants and 1 nonparticipant per school.

Response rates (Table 2-3) varied by instrument--SRIF's were completed by 95 percent of the 19,144 sample students, Student Questionnaires by 87 percent, and Test Books by 83 percent. Looking at the response rates another way, SRIF's were filled out for all but 33 of the 18,143 participating students--nearly a 100 percent response--and Student Questionnaires and Test Books were completed by 92 percent and 87 percent.

The School Questionnaire was completed by 97 percent (1,038) of the participating schools; the Counselor Questionnaire, by 1,084 counselors in 1,040 schools.

C. Resurvey Plans

Due to the large school nonresponse in 1972, it was necessary to elicit responses from the 231 nonparticipating primary schools and replacements for the 21 schools that had no seniors. "Resurvey" activity initiated by NCES in the summer of 1973 before the first follow-up survey of October 1973 involved securing school cooperation and selecting random samples of up to 18 students (1972 seniors) per school. RTI's basic responsibilities were to:

1. Collect School Questionnaire data from each resurvey school;
2. Collect SRIF data on individuals selected from each resurvey school, obtain permission to use SRIF data on file for base-year students for which permission was lacking, and obtain the same SRIF-use permission from individuals selected for resurvey;
3. Collect short Base-Year questionnaire data from those individuals selected from each resurvey school;
4. Collect short Base-Year questionnaire data from individuals who were partially surveyed in the base-year.
5. Update the base-year data base and produce weights to incorporate the additional data.

The information gathering was limited to relatively hard data rather than data on attitudes, plans, and perceptions likely to change substantially over time.

D. Resurvey Participation, 1973-74

In the summer of 1973 when NCES contacted the 231 sample schools that had not participated in the base-year survey, most of them (205) provided the latest names and addresses of up to 18 of their 1972 seniors selected by simple random sampling. Former 1972 senior students were also selected from 16 augmentation sample schools (in 200 school districts, eligible public schools not included in the base-year sampling frame). Thus 4,315 former students were added from 257 participating resurvey schools--205 primary sample, 36 backup sample, and 16 augmentation sample schools.

A newsletter developed by RTI was mailed in July 1973 not only to encourage participation but also to update names and addresses. When mail was returned by the U.S. postal service as undeliverable, telephone tracing procedures were used to obtain current addresses. Table 2-4 shows the response rates of the resurvey group. The individual response rate to Form B was acceptably high; however, school cooperation in completing School Questionnaires and providing SRIF's proved difficult to obtain. SRIF's were requested from schools only for those resurvey individuals who gave permission for the data to be used.

E. First Follow-Up Participation, 1973-74

Table 2-5 shows the numbers of schools participating in the base year, the resurvey, and the first follow-up. Not included in the first follow-up were 26 schools termed "extra" in the base year. Due to the resurvey, 1,153 or 96 percent of the 1,200 primary sample schools did participate. With the backup and the augmentation sample, the first follow-up participation was 1,300 schools.

Table 2-4. Resurvey Student Response Rates

Survey Instrument	Number Completed	Number in Sample	Percent Participating
Form B Questionnaire*	4,061	4,315	94.1
School Questionnaire	202	257	78.6
SRIF-Use Permission	3,467**	4,315	80.3

*With base-year background data.

**Includes 880 SRIF's received after cutoff date of first release tape.

Table 2-5. Number of Participating Schools, by Survey

School Sample	The Base-Year Survey	The Resurvey Effort	First Follow-Up Survey
Primary sample	948	205	1,153
Backup sample			
"Extra" in base year	26*	--	--
Other	95	36	131
Augmentation sample	--	16	16
Total	1,069	257	1,300*

*The 26 extra schools were not included in the first follow-up.

Table 2-6 shows the composition of the first follow-up sample membership. Included in the final NLS sample of 23,451 are 19,136 base-year participants and 4,315 resurvey members. Base-year extras not surveyed in the first follow-up, removals from the file, and participants with bad addresses, etc., yielded a final follow-up mailout sample of 22,654.

References to Chapter II

1. WESTAT, Inc.
   1972. Sample Design for the Selection of a Sample of Schools with Twelfth-Graders for a Longitudinal Study. Rockville, Maryland.

2. Educational Testing Service.
   1973. The Base-Year Survey of the National Longitudinal Study of the High School Class of 1972--Final Report. Princeton, New Jersey.

Table 2-6. Composition of First Follow-Up Sample Membership

A.	Received from Prior Contractor			
	B-Y Respondents from:			
	Primary Sample Schools		18,502	
	With Student Questionnaires	16,301		
	Without Student Questionnaires	2,201		
	Backup Sample Schools		499	
	With Student Questionnaires	382		
	Without Student Questionnaires	117		
	Other Schools		135	
	Without Student Questionnaires	135		
	Total Sample Received		19,136	19,136
	Duplicate and Ineligible Records (later removed)		8	
	Total Records Received		19,144	
B.	Resurvey Sample			
	Original Sample School Members		4,047	
	Augmentation Sample School Members		268	
	Total Resurvey Sample			4,315
C.	Total NLS Sample			23,451
D.	Pre-Survey Removals			
	Base-Year Extras		- 472	
	Refusals		- 34	
	Deceased		- 5	
	Transfers or Dropouts Prior to Graduation		- 21	
	Miscellaneous (EMR, Out of Country, etc.)		- 9	
	Incomplete or Garbled Addresses, Untraceable, etc.		- 256	
	Total Removals			- 797
E.	Total First First Follow-Up Mailout			22,654

Chapter III

DEVELOPMENT OF THE FIRST FOLLOW-UP QUESTIONNAIRES

A. Modifying a Model

One early effort in planning for the NLS was a large-scale literature review and analysis by UCLA's Center for the Study of Evaluation.[1] Selected major longitudinal studies of student and nonstudent populations were analyzed to discover variables, techniques, methodologies, and problems pertinent to evaluations of the effects of schools and colleges on children and young adults between the ages of 14 and 30.

One product of the UCLA effort was the conceptualized General Educational Development Model depicted in Figure 3-1.[1] RTI began planning for the First Follow-Up Questionnaire with this model and modified it to include the Base-Year Student Questionniare.

The RTI modification excludes some classes of variables (e.g., psychological climate and socialization in the home) since they were not considered amenable to adequate measurement. Other classes (e.g., personal, intellectual, and educational satisfactions) explicitly included in UCLA's model were considered by RTI to be best measured in future follow-ups. Others were combined; for example, goal orientation in the RTI model encompasses expectations and aspirations in UCLA's model. Still others (e.g., community environment) not explicitly included in the first model became key to the RTI model. The modified model is shown as Figure 3-2.

B. Defining the Questionnaire Objectives

The questionnaire was designed to meet the primary analytical objectives of the first follow-up survey by providing continuity over time in measurements of educational-vocational plans of the base-year respondents. A programmatic objective was to identify sociocultural variables which may have had impacts on 1972-73 educational-occupational decisions. In view of these two broad objectives, questionnaire items were designed to describe the flow pattern between an individual's activity states in October 1972 and October 1973 and the future plans and aspirations and opinions and attitudes relevant to educational-vocational outcomes. To guide item selection and revision, 10 questionnaire objectives were defined.

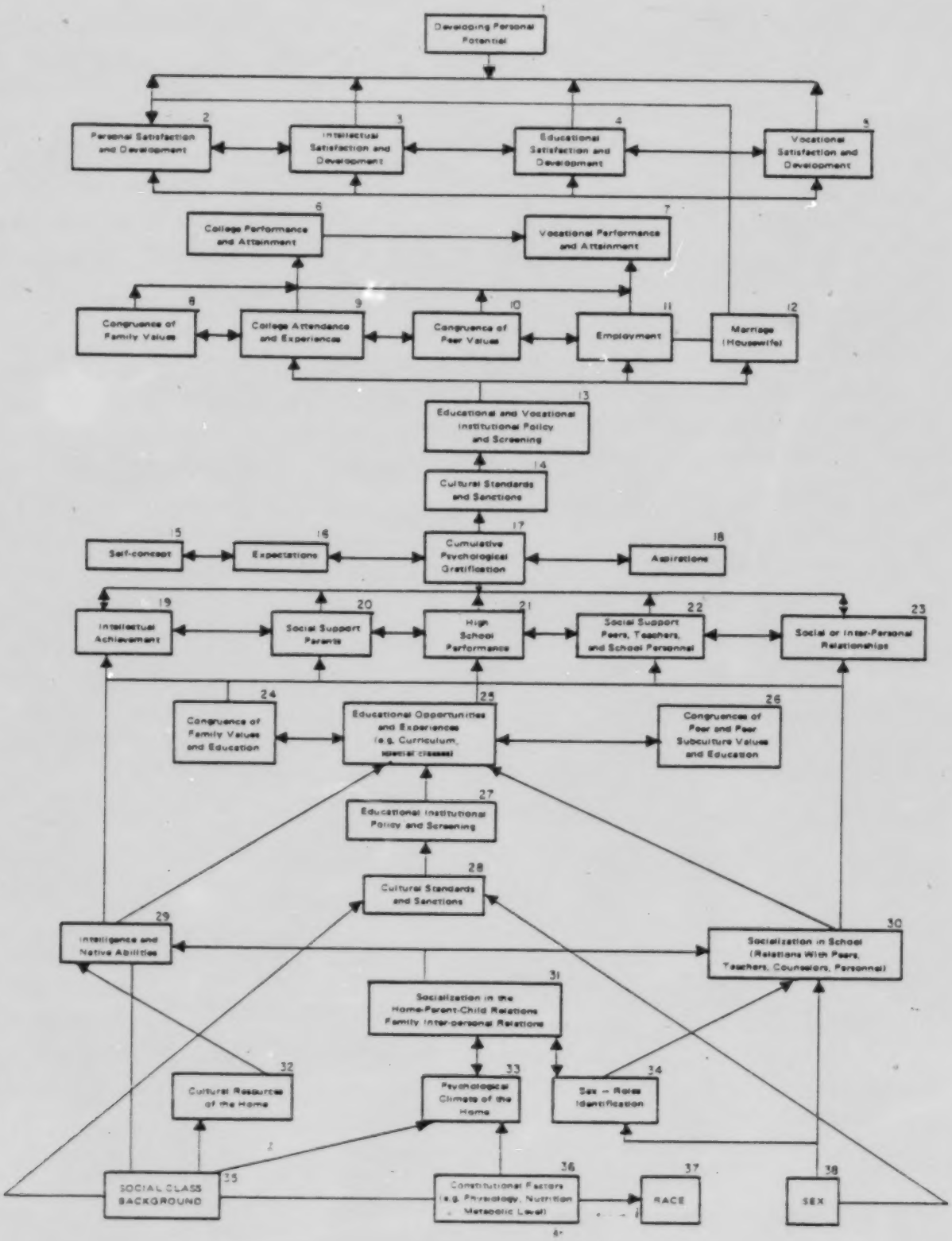


Figure 3-1. General Educational Development Model[1]

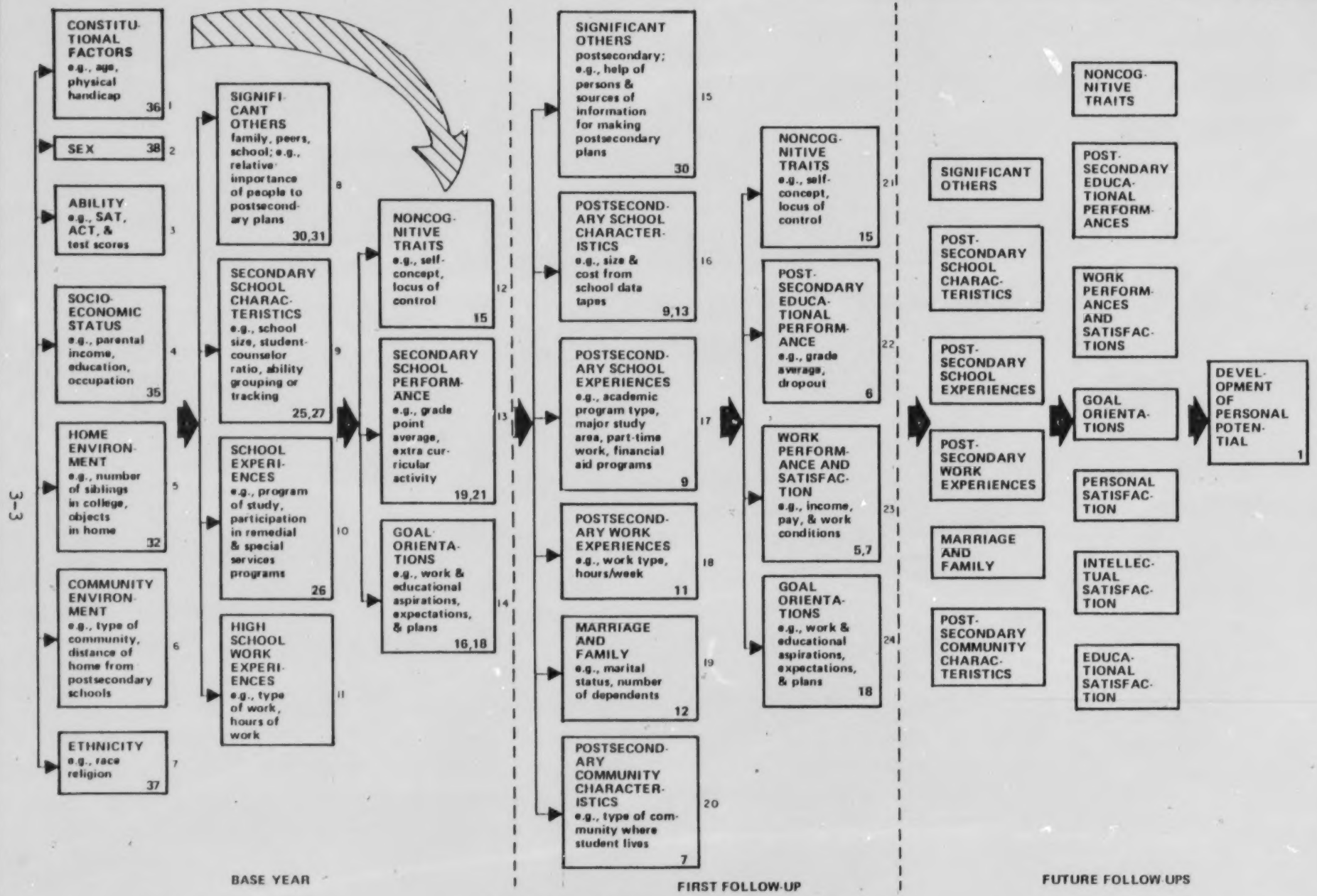

CONSTITUTIONAL FACTORS e.g., age, physical handicap 36 1
SEX 38 2
ABILITY e.g., SAT, ACT, & test scores 3
SOCIOECONOMIC STATUS e.g., parental income, education, occupation 35 4
HOME ENVIRONMENT e.g., number of siblings in college, objects in home 32 5
COMMUNITY ENVIRONMENT e.g., type of community, distance of home from postsecondary schools 6
ETHNICITY e.g., race religion 37 7
SIGNIFICANT OTHERS family, peers, school; e.g., relative importance of people to postsecondary plans 30,31 8
SECONDARY SCHOOL CHARACTERISTICS e.g., school size, student-counselor ratio, ability grouping or tracking 25,27 9
SCHOOL EXPERIENCES e.g., program of study, participation in remedial & special services programs 26 10
HIGH SCHOOL WORK EXPERIENCES e.g., type of work, hours of work 11
NONCOGNITIVE TRAITS e.g., self-concept, locus of control 15 12
SECONDARY SCHOOL PERFORMANCE e.g., grade point average, extra curricular activity 19,21 13
GOAL ORIENTATIONS e.g., work & educational aspirations, expectations, & plans 16,18 14
SIGNIFICANT OTHERS postsecondary; e.g., help of persons & sources of information for making postsecondary plans 30 15
POSTSECONDARY SCHOOL CHARACTERISTICS e.g., size & cost from school data tapes 9,13 16
POSTSECONDARY SCHOOL EXPERIENCES e.g., academic program type, major study area, part-time work, financial aid programs 9 17
POSTSECONDARY WORK EXPERIENCES e.g., work type, hours/week 11 18
MARRIAGE AND FAMILY e.g., marital status, number of dependents 12 19
POSTSECONDARY COMMUNITY CHARACTERISTICS e.g., type of community where student lives 7 20
NONCOGNITIVE TRAITS e.g., self-concept, locus of control 15 21
POSTSECONDARY EDUCATIONAL PERFORMANCE e.g., grade average, dropout 6 22
WORK PERFORMANCE AND SATISFACTION e.g., income, pay, & work conditions 5,7 23
GOAL ORIENTATIONS e.g., work & educational aspirations, expectations, & plans 18 24
SIGNIFICANT OTHERS
POSTSECONDARY SCHOOL CHARACTERISTICS
POSTSECONDARY SCHOOL EXPERIENCES
POSTSECONDARY WORK EXPERIENCES
MARRIAGE AND FAMILY
POSTSECONDARY COMMUNITY CHARACTERISTICS
NONCOGNITIVE TRAITS
POSTSECONDARY EDUCATIONAL PERFORMANCES
WORK PERFORMANCES AND SATISFACTIONS
GOAL ORIENTATIONS
PERSONAL SATISFACTION
INTELLECTUAL SATISFACTION
EDUCATIONAL SATISFACTION
DEVELOPMENT OF PERSONAL POTENTIAL 1
BASE YEAR
FIRST FOLLOW-UP
FUTURE FOLLOW-UPS

FIGURE 3-2. CONCEPTUAL MODEL OF THE NLS.

OBJECTIVE 1--To document the activity states and programs in October 1972 and October 1973.

Student activities and progress in 1972-73 were determined by requesting information beyond that asked for in item 1: "What are you doing now?" Groups of items follow:

EDUCATIONAL STATUS

School attendance
Educational and training programs since high school
Postsecondary school attended since high school
Classes or courses in October 1973
Classes or courses in October 1972
Other school attended since high school
Current attendance at other school

Institution type
Name, location, and type of school in October 1973
Name, location, and type of school in October 1972
Name, location, and type of other school

Program type
Type of educational or training program
Field of study or training in October 1973
Field of study or training in October 1972

Program completion
Completion of educational or training program
Grades
Credits earned
Certificate, degree, or license working toward
Certificate, degree, or license earned

EMPLOYMENT STATUS

1973 and 1972
Working in October
Reasons not working in October
Looking for work in September
Job description in October
Hours worked per week in October
Earnings per week in October
Other jobs in October

MILITARY STATUS

Current status
Branch of Armed Forces
Enlisted or drafted
Date began active duty
Specialized schooling
Type of program
Pay grade and speciality rating
Courses taken
Active duty or date left

MARITAL STATUS

Marital status
Marriage date

OBJECTIVE 2--To identify background factors associated with postsecondary school choices and career paths and persistence in those choices and paths.

Background factors (input variables) considered to be important predictors of postsecondary school choices and career paths were measured in the base-year questionnaires. Most of them did not need to be repeated; however, the first follow-up survey was to include about 4,300 individuals not surveyed in the base year--the resurvey members, for whom an augmented form of the questionnaire was prepared. Additional base-year questions on this augmented form included socioeconomic status and home environment; race or ethnicity; religion; community characteristics; influences of significant others such as peers, parents, and school personnel; high school program and activities; and personal characteristics such as ability, sex, age, and physical handicaps.

OBJECTIVE 3--To identify contemporaneous variables associated with persistence and changes in plans in spring of 1972 and activity states in October 1972 and October 1973.

The purpose was to estimate the effects of contemporaneous events--those intervening events occurring after a student leaves high school--upon persistence in activity states between October 1972 and October 1973. (As a rule, it is necessary to control key background variables such as socioeconomic status in order to assess the effects of postsecondary school variables.) Variables which research has suggested may be important for facilitating or inhibiting a student's progress after leaving high school are:

Economic factors measured by items 9 and 10 on the contemporaneous financial independence and responsibilities of the individual's parents and himself; item 11 on individual's and spouses' incomes' items 46 and 47 on costs of and sources for paying for education.

School experiences measured by items 24 and 29b on reasons for not continuing education; items 81-84 on the college applications; items 27a, 33a, and 40c on matriculation dates; items 27b and 33b on full- versus part-time status; item 31 on reasons for changing schools; item 38 on reasons for withdrawing from school; items 22, 28, and 36 on fields of study; items 34 and 35 on changing fields; item 44 on participation in special services programs.

Work experience measured by items 48b and 54b on reasons not working; item 51 on job satisfaction; item 59 on methods used in looking for work; items 62 and 63 on the relatedness of high school vocational training and subsequent work experience.

Marriage and family planning measured by item 7 on marital status; items 8, 17, and 18 on fertility behavior and plans; items 24, 29b, 48b, and 54b on marriage (homemaking) as a reason for not working or going to school.

Community characteristics measured by item 6b on migrations; items 4 and 5 on people lived with and type of residence; item 6a on location (suburb, farm, city, etc.).

Psychological traits measured by item 15 on self-concept and control of environment; item 13 on willingness to borrow money for education.

Influences measured by items 77 and 85 on encouragement, discouragement, and helpfulness of significant others in making vocational-educational decisions.

OBJECTIVE 4--To measure shifts in general and specific life goals in short- and long-range planning.

Plans or aspirations are not always congruent with the states in which individuals find themselves at any given point in time. Thus, in October 1973, we wanted to know their current plans and future goals. Changes in goals since they were seniors were examined to see if the changes were in a direction consistent with educational-vocational qualifications and/or experiences. To maintain comparability, the majority of items measuring aspirations in the First Follow-Up Questionnaire were repeats of items in the Base-Year (B-Y) Student Questionnaire.

Item 20 measures life goals (as did B-Y item 20), items 12 and 14 measure educational aspirations and expectations (same as B-Y item 29), item 19 identifies the kind of work they expect to be doing when they are 30 (revision of B-Y item 25), items 75 and 76 measure the plans for the military service, and items 7a, 17, and 18 deal with marital and childbearing plans important to predicting educational-vocational outcomes of men and women.

OBJECTIVE 5--To estimate the effects of institutional and federally financed programs on aspirations and persistence in career programs.

Some items help identify the level of special assistance needs of students with handicaps and refer to the uses that students make of different programs.

Items 24 and 29b on reasons for not continuing education, items 31 and 35 on reasons for changing school and field of study, and items 48b and 54b on reasons for not working identify students in need of assistance. Individuals who have received special assistance or have used institutional resources may be identified by item 85 on helpfulness of high school counseling programs; items 82d, 83d, and 84d on offers of financial aid for continuing education; item 47 on sources for paying school and college expenses; item 44 on participation in special services programs; item 22a dealing with on-the-job training and other manpower programs; item 59 on the uses of agencies in finding work; and items 72 and 76 on the uses of the GI bill in making educational plans.

OBJECTIVE 6--To identify subgroups of potential interest for special analysis.

The measures required for special analyses of postsecondary school dropouts (e.g., those of high ability) and disadvantaged minority groups are covered by items in the Student Questionnaire or by items mentioned under the above objectives.

OBJECTIVE 7--To measure short-term progress with respect to the relative effectiveness of high school and postsecondary vocational and on-the-job training.

Whereas many individuals who continued their education after leaving high school will not have completed their program of studies, some students who have received career training will not be in the work force.

The short-term effects of career training are assessed by item 50b on earnings per week and by item 51 on job satisfaction. The following measure the relatedness of career training to employment: 22 and 43 describe programs completed and certificates earned in postsecondary vocational business, or trade schools; 61, 62, and 63 assess the utility of high school vocational training programs.

OBJECTIVE 8--To assess the influence of the high school "environment"--as reflected by the variance in ability and socioeconomic background of the students in a school--on the progress of subgroups in different activity states.

This objective may be fulfilled by using the measures of progress outlined under objective 3. Items used as predictors and as the bases for classifying selected subgroups of special interest will be taken from the Base-Year Student and School Questionnaires.

OBJECTIVE 9--To define areas for concentration in subsequent follow-ups in order to assess the effects of education on nonvocational and nonacademic outcomes, including cognitive and noncognitive measures.

While conventional measures such as employment status and income will be used in later analyses to distinguish the "successful" from the "unsuccessful" students, education may have other significant outcomes that often are overlooked. Thus the cognitive traits "self-esteem" and "locus of control" (item 15) and life goals (item 20) were repeated from the Student Questionnaire.

OBJECTIVE 10--To develop a follow-up questionnaire for assembling, merging, and maintaining data on a large sample of a highly mobile population and to develop the means for clearly defining the target population at any point in time.

The timing of events was critical in the follow-up since questionnaires would be administered to respondents over a 2- to 6-month period. To provide a common reference date for the entire sample, most recent events are linked to the October 1973 date. However, since psychological traits such as "attitudes" can be measured only contemporaneously (as many as 6 months after October), it will be important to know if any major change has occurred in activity states in the interim. Item 1 ("What are you doing now?"), items 22c, 28c, and 36c on program length; item 22d on program completion; and items 49g and 55g on current work status will detect such changes.

C. Field Testing and Revising the Initial Version

Between the base-year data collection in June 1972 and the start of the first follow-up in October 1973, the Bureau of the Census field tested the initial

version of a full-scale questionnaire approved by OMB as No. 41-S-73004. This questionnaire was administered during March-May 1973 to 903 high school seniors from the class of 1971--the same sample selected and used in 1971 by RTI (under contract with USOE) to design the base-year survey.

The field-tested questionnaire (appendix B) was to be used in the first follow-up to ascertain the educational and work statuses of the 1972 school seniors for October 1972 and October 1973 and to obtain data on self-concept, locus of control, aspirations, expectations, plans, goals, and work and educational experiences. It was the basis for item revisions and additions which were outgrowths of the application to it of the UCLA and RTI conceptual models. After 6 weeks of conferences, staff meetings, and draft working papers, the final form of the First Follow-up Questionnaire was approved in September 1973.

The field-tested instrument contained 63 items. The final form contained 85. The latter instrument was longer because--

1. Time references over the relatively long period (October 1973-March 1974) for collecting data on educational and work activities were addressed to two points in time, October 1972 and the first week of October 1973. (The field test version concentrated primarily on the respondent's current activity).
2. New areas thought to be of sufficient importance to be included in the new instrument were fertility behavior and plans, life goals, school progress, noncollege education and training programs, and financial independence.
3. Some old questions (e.g., those involving college choice) had to be expanded in scope to obtain the data to answer questions of interest.
4. Father's education and occupation were added to the follow-up instruments. Many of the proposed first follow-up analyses were to involve work and educational paths of subpopulations defined in part by family socioeconomic status, and there was substantial nonresponse to these items in the base-year survey.
5. Certain base-year questions needed to be asked of first follow-up respondents who had not or who had partially participated in 1972 (provided some data but did not complete a Student Questionnaire). Plans were being made to recontact nonparticipant schools and to select about 4,450 students. Both groups would need retrospective base-year questions; Forms A and B of the First Follow-Up Questionnaire were developed.

D. Grouping the Items

Form A of the First Follow-Up Questionnaire is an 85-item, 24-page booklet for self-administration by the respondent. Most of the base-year and first follow-up questions are of the fixed-choice (closed-response) types. Open-response questions were limited to dates, income, number of hours or weeks

worked, and the like. All questions were constructed and formatted by specialists in instrument design.

Form B of the questionnaire (appendix C) was designed for participants from whom selected base-year data were needed. Identical to Form A through 85 items and 24 pages, Form B continues for 14 items (86-99) in section E, which concerns high school program, activities, and plans; family information; and personal demographic information. Form B also contains a signature block on the inside front cover for permission to use school records. Table 3-1 indicates the first follow-up and base year equivalents for these 14 items.

Forms A and B are divided into six sections: general information, education and training, civilian work experience, military service, information about the past, and background information.

1. Section A--General Information

Section A contains questions about present activity state (1); high school status (2,3); present community and home characteristics (4,5,6); present marital status and fertility (7,8); present financial dependence and income (9,10,11); educational aspirations and expectations, including financial plans (12,13,14); self-concept and locus of control (15); expected future activity s states, including plans for childbearing (16,17,18,19); and goal orientations (20).

The marital status and fertility questions can be especially useful in explaining the career patterns of men and women. Self-concept, locus of control, life goal orientations, educational expectations, and plans were also measured in the

Table 3-1. First Follow-up and Base-Year Questionnaire Numbers

First Follow-Up (Form B)	Base-Year
86	2
87	5
88	8
89A through 89I	10A through 10I
90	27
91	16
92A and 92B	91A and 91B
93	93
94A through 94K	94A through 94K
95	84
96	88
97	92
98	95
99	83

base year; thus the absolute values of and the changes in these for the two time points can be hypothesized to moderate the conditional probabilities of leaving one plan or activity state for another.

2. Section B--Education and Training

Section B contains questions about nonschool, nonmilitary training programs (21,22); formal postsecondary education (23); reasons for not continuing formal education (24,29b); 1973 educational status (25,27); characteristics of school attending (26); 1973 field of study or training (28); 1972 educational status (29a,33); transferring and withdrawing (30,31,37,38); characteristics of school attended in 1972 (32); change in field of study or training (34,35); 1972 field of study or training (36); attendance at other schools (39,40); school progress (41,42,43); special services (44); satisfactions with education and training (45); and schooling or training finances (46,47).

The questions in this section were designed primarily for defining postsecondary educational and training activity states which are to be used as outcomes in the descriptive, predictive, and causal-modeling analyses.

3. Section C--Civilian Work Experience

Section C contains questions about present employment status (48a,48c); reasons for not working (48b); characteristics of present job (49,50); satisfaction with that job (51); work expectations for 1974 (52); other jobs in 1973 (53); employment status in 1972 (54a,54c); reasons for not working in 1972 (54b); characteristics of 1972 job (55,56); other jobs in 1972 (57); summary of jobs and weeks worked, October 1972 to October 1973 (58); methods of looking for work (59); and employment using high school training (60,61,62,63).

The questions in this section were designed for defining work activity states which are to be used as outcomes in descriptive, predictive, and causal-modeling analyses.

4. Section D--Military Service

Section D contains questions about branch and status of military service (64,65,66,67,74); specialized schooling (68,69,71); pay grade and specialty rating (70); plans to use the GI bill (72); satisfaction with the military service (73); military career plans (75); and postmilitary career plans (76).

The questions in this section are used to define work activity states in descriptive, predictive, and causal-modeling analyses.

5. Section E--Information about the Past

Section E contains questions about influences of parents and friends on postsecondary activities (77); parental educational levels (78); father's

occupation (79); mother's employment status (80); prior application, acceptance, and financial aid at first-choice school or college (81,82); second-choice and third-choice schools or college (83,84); and helpfulness of high school counseling services (85).

Section E of Form B contains 14 additional items (86-99) which were discussed in this chapter.

6. Section F--Background Information

The inside back pages of Forms A and B contain section F, which asks for the names, addresses, and telephone numbers of the respondent, respondent's parents, and two other persons; and the date of birth, social security number, and driver's license number of the respondent. This information is used in tracing activities for subsequent follow-up surveys.

E. Selecting the Key-Response Items

Many considerations went into deciding whether a returned questionnaire contained adequate information for acceptance, editing, and entry into the data file. The general requirement was to obtain a certain required minimum of data on respondent activities since leaving high school, rather than complete data on all items. The following items were designated as crucial to the acceptability of the questionnaire.

General Information

1 What are you doing now?
16 What do you expect to be doing in October 1974?

Education and Training

21 Since high school, any training programs? If "yes," 22a should be completed. (The response to 21 can be presumed if 22a is completed.)
23 Since high school, any college or universities? If "yes," 25 should be answered. If 25 is "yes," 26a and 26b should be answered.
29a Any classes or courses October 1972? If "yes," 30 should be answered. If 30 is "no," 32a should be answered.
37 Withdraw from school prior to completion? If 34 is "no," 37 should be completed.

Civilian Work Experience

48a Holding a job in October 1973? If "yes," 49a,b,c,d should be answered.
54a Holding a job in October 1972? If "yes," (different job), 5 a,b,c,d should be answered.
58 1972-73 work history. Section A of 58 should be completed.

Military Service

64 Served in Armed Forces?

Information about the Past (Form B)

95 Ethnicity

Background Information

Names, addresses, and telephone numbers of respondent and his parents.
Date of birth, sex, and social security number for Form B respondents.
Signature permission for Form B respondents.

Immediately after receipt and check-in of a mail-returned questionnaire, it was routed to a manual premachine edit section where responses to the above key items were verified for presence and consistency. (Cost restraints and questionnaire complexity limited the editing to these items.) Failures were noted on an Edit Problem Sheet, which was routed with the questionnaire to the Telephone Tracing Department. The respondent was telephoned if possible so that inconsistencies could be clarified or corrected and missing data could be supplied.

Reference to Chapter III

1. Trent, James W., Claire Rose, Ann Salyard, Judd Adams, Alfred C. Marcus, J. Ward Keesling, and Arthur Gerst.
1972. An Analytical Review of Longitudinal and Related Studies as They Apply to the Educational Process. Los Angeles: Center for the Study of Evaluation, UCLA.

Chapter IV

MAXIMIZING PARTICIPATION AND RESPONSE

A. Introduction

The NLS population is young, highly mobile, and involved in decisions about future work and life patterns. Continued participation in NLS depends largely on the success of the contractor in keeping in touch with, motivating, and developing rapport with individuals in the survey population. Methods used by RTI and NCES to enhance the willingness and to increase the response included newsletters, thank-you letters, mailgrams, reminder post cards, and wallet-sized cards showing NLS involvement and serving as change-of-address cards. Copies of these are in appendix D. Several recommendations for maintaining cooperation and improving response were outgrowths of the first follow-up survey; these recommendations are given in section I of this chapter.

Response to the mail questionnaire will become more crucial and costly each year with each survey. For this first follow-up, the letter, post card, and telephone contacts were designed to produce a mail response rate of 60 percent, within resource and cost considerations. The remaining 40 percent were to be individually interviewed by Census Bureau field personnel using tracing information provided by RTI.

B. Newsletters

In July 1973, RTI sent newsletters to base-year participants. Slightly modified newsletters were mailed to "resurvey" members in September 1973. The first newsletters reviewed the purpose of NLS, described student participation levels, announced that the first follow-up survey was underway, stated that a questionnaire would be mailed in about 3 weeks, stressed the importance of continued participation, and requested that the respondent return an enclosed card verifying current address or showing the needed corrections. Before the major mailout of the First Follow-Up Questionnaire, resurvey members were mailed a revised version of the newsletter; it explained the study, elicited cooperation, and requested permission to use school record information to be collected from resurvey schools. Mailed in 1973 were 23,560 newsletters:

16,650 on July 27, 30, 31
400 on August 21
3,408 on September 26
3,102 on October 8, 9

Benefits of a newsletter were valuable leadtime in locating respondents for whom addresses had changed and being able to update the addresses prior to the questionnaire mailout.

C. Tracing Activities

RTI established a Telephone Tracing Department, recruited and trained staff, installed special equipment, wrote a manual on tracing, and traced about 90 percent of the more than 2,000 cases from the base-year and the resurvey efforts (Table 4-1). Almost all cases were contacted by telephone. Among the 177 unsuccessful cases, many were attempted by mail and by telephone. Mail was used for students, parents, and others who did not have telephones and for some colleges and state motor vehicle departments. Of the unsuccessful cases, 14 were sent to a local credit bureau; the bureau was unable to obtain current addresses for these.

In the Base-Year Student Questionnaire were requests for the student's name, address, social security number, and driver's license number; the name of the postsecondary educational institution the student planned to attend; and the names and addresses of two people who would always know where to get in touch with the respondent. Similar tracing information was requested in section F of the First Follow-Up Questionnaire.

Early in August of 1973, tracing to prepare for the first follow-up began as the postal service returned undeliverable newsletters; it continued through January 1974 as undeliverable questionnaires were returned. Information types and sources were:

1. Name, address, and telephone of parents, guardians, or relatives.
2. Names, addresses, and telephones of two people who would always know how to get in touch with the individual.
3. Name and location of postsecondary school the individual attended or planned to attend.

Table 4-1. Telephone Tracing Cases, 1973-74

Reason for Tracing	Cases				
		Completed		Unsuccessful	
	Traced	Number	Percent	Number	Percent
Newsletter undeliverable	1,565	1,493	95.4	72	4.6
Questionnaire undeliverable	502	397	79.1	105	20.9
Total	2,067	1,890		177	

4. Name and location of the individual's employer.
5. Neighbors of the individual or his parents.
6. Principal or other contact at the secondary school attended.
7. State or registration and identification number of driver's license.
8. Local government agencies.
9. Armed Forces locator services or DOD rosters.
10. Institutional records (i.e., prison, police, mental).
11. Local credit bureau or a similar organization.

As new addresses were obtained from tracing activities, returned mail, or other sources, the computer file of names and addresses was updated.

D. Data Collection Activities

1. Mail-Return Responses

Questionnaires (Forms A and B) were mailed on 23-24 October 1973 to 22,654 students in the first follow-up sample. Events following this mailout (Table 4-2) resulted in 13,928 returns and a 61.5 percent mail response rate by 1 February 1974. When necessary, additional questionnaires were mailed; 1,376 second questionnaires were mailed as a result of tracing activities from 16 November 1973 through 4 January 1974.

Not shown in the table are the 107 duplicates caused by timelag and error, 108 written refusals, an NCES letter mailed with the second questionnaire to nonrespondents, an RTI letter of thanks sent to all mail respondents, and

Table 4-2. Overall Mail Returns and Response Rates, 1973-74

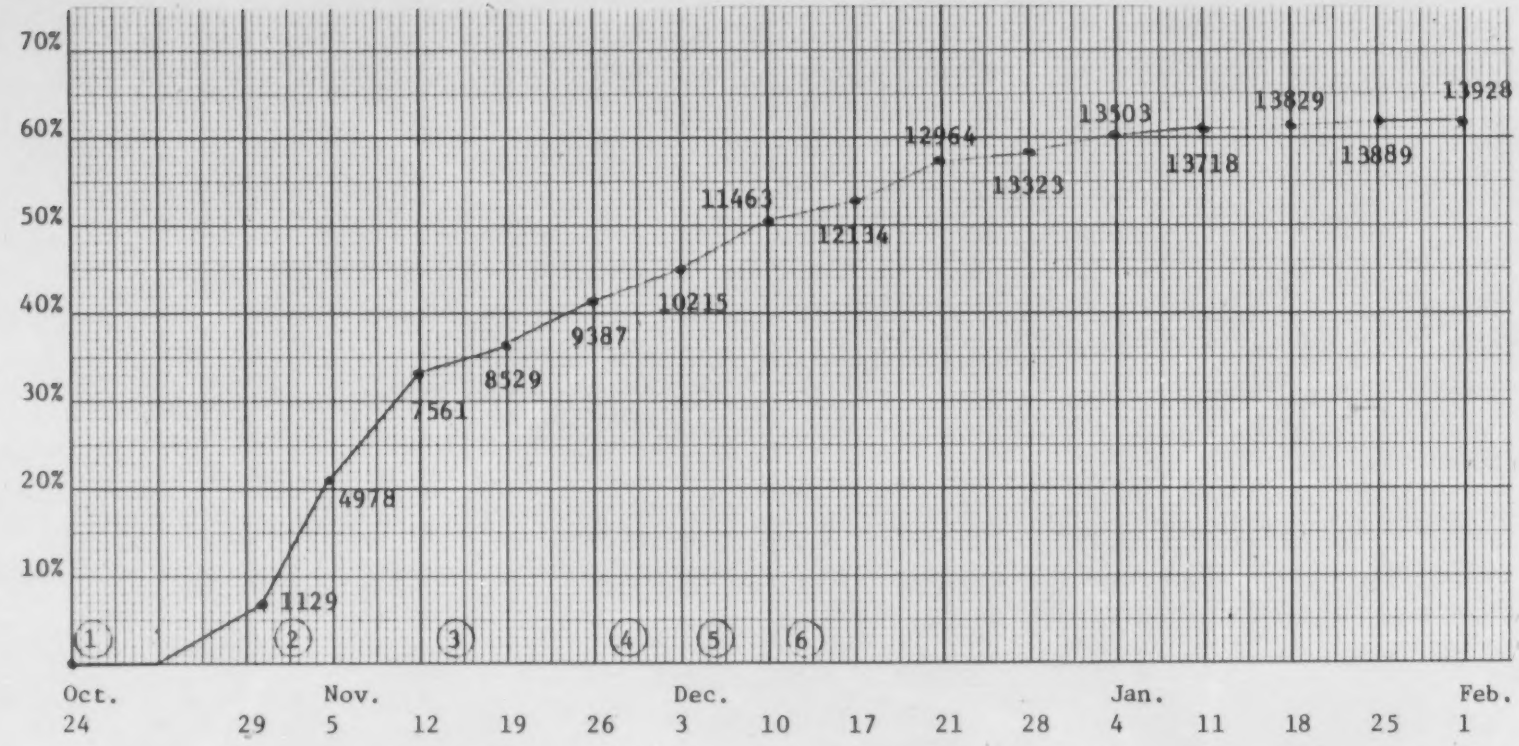
Main Event	Number Mailed	Days Elapsed*	Questionnaire Responses: Number Returned	Questionnaire Responses: Cumulative Total	Questionnaire Responses: Overall Response Rate
1st questionnaire mailout	22,654	--	--	--	--
Reminder/thank-you post card	22,654	8	2,615	2,615	11.5%
1st prompting post card	14,053	23	5,277	7,892	34.8%
2nd questionnaire mailout	12,163**	37	1,723	9,615	42.4%
2nd prompting post card	11,945**	44	1,017	10,632	46.9%
Mailgram requests***	10,313	53	1,502	12,134	53.5%
--	--	72	1,423	13,577	59.8%
--	--	102	371	13,928	61.5%

*Days since the 1st questionnaire mailout of 10/23-24, 1973. See Fig. 4-1.

**On 11/27-28, post cards were mailed to 2,183 of the 12,163; on 12/4-5, 2nd questionnaires were mailed to 3,080 of the 11,945. (Mailings were results of the special study, section IV of this report.)

***A final effort to increase the rate to 60% (a result of the special study).

Figure 4-1. Cumulative Response to All Mailout Types, 1973-74



Mailout Events:

① 1st questionnaire mailout, 10/23-24

② Reminder/thank-you post card, 10/30-31

③ 1st prompting post card, 11/13-14

④ 2nd questionnaire mailout, 11/27-28

⑤ 2nd prompting post card, 12/4-5

⑥ Mailgram requests, 12/13-14

the computer-generated, self-mailing ID and change-of-address cards sent to all participants after the first follow-up survey.

Figure 4-1 shows cumulative response rates to all mailouts. The bulk of the mail responses (61 percent) was received at RTI in the first 3 weeks after the October 1973 mailout. The rates were 21 percent for the next 3-week period and 18 percent for the final period prior to 1 February 1974. Additional mail questionnaires were received later, during the field interview phase. The mail returns finally totaled 14,019 or 61.9 percent.

Table 4-3 (page 4-6) compares mail response rates of base-year and first follow-up participants by sex, race, region, urbanization, and family income as of the senior year in high school. Complete data were not available from base-year files on all variables for all students; for example, data on the resurvey respondents were missing sex, race, etc., which were gathered in the first follow-up in Form B. The response rates were highest for females (71.0 percent) and for whites (70.9 percent). The South was lower (60.8 percent) than the other regions (average 66.8 percent). The degree of urbanization of the schools appeared to have little effect on response; the nine categories ranged from 61.4 to 68.9 percent. There was a spread of 19.6 percent in response rates affected by income; students of the higher income families generally responded at a high rate.

2. Effects of Mailouts

Although it was not possible to determine the effect of each mailout on the response rate, one conclusion was that no appreciable effect is felt until about 5 days after a mailout. This conclusion allowed the estimates of response rates that are shown in Table 4-4, but it did not allow for cumulative effects caused by multiple mail requests.

Table 4-4. Estimates of Effects of Mailouts on Response Rates

Main Event	Overall Response Rate
First questionnaire mailout	21%
Reminder/thank-you post card	16%
First prompting post card	8%
Second questionnaire mailout	6%
Second prompting post card	3%
Mailgram requests	7%
Total	61%

Table 4-3. Mail Response Rates of Subpopulations

Subpopulation Group	Number of Participants		Total Response Rate
	In Sample	Responding	
Sex			
Male	8,074	4,864	60.3%
Female	8,201	5,825	71.0%
Race			
Black	2,023	989	48.9%
White	12,287	8,711	70.9%
Other	1,550	888	57.3%
Region			
Northeast	3,742	2,522	67.4%
Central	4,857	3,234	66.6%
South	5,963	3,626	60.8%
West	3,157	2,093	66.3%
School urbanization			
1. 10 largest central city districts	1,915	1,225	64.0%
2. Next 90 largest central districts	2,058	1,264	61.4%
3. SMSA schools within 10 largest	1,599	1,102	68.9%
4. SMSA schools within next 90 largest	2,834	1,897	66.9%
5. All other SMSA schools	3,258	2,088	64.1%
6. Outside SMSA, 75-100% urban	382	252	65.8%
7. Outside SMSA, 50-74% urban	1,724	1,116	64.7%
8. Outside SMSA, 25-49% urban	2,168	1,414	65.2%
9. Outside SMSA, 0-24% urban	1,570	978	62.3%
Income			
Less than $3,000	943	510	54.1%
$ 3,000 to $ 6,000	1,621	965	59.5%
$ 6,000 to $ 7,500	1,462	922	63.1%
$ 7,500 to $ 9,000	1,297	830	64.0%
$ 9,000 to $10,500	1,524	1,101	72.2%
$10,500 to $12,000	1,216	831	68.3%
$12,000 to $13,500	1,106	763	69.0%
$13,500 to $15,000	837	615	73.5%
$15,000 to $18,000	1,082	787	72.7%
$18,000+	1,756	1,294	73.7%

The overall mail response rate, slightly more than 61 percent (Table 4-5), appears to be high--considering the questionnaire length (24-28 pages) and complexity and considering that no incentive was offered and that "resurvey" students (about 20 percent of the total) had had no prior NLS involvement. The response rates for the resurvey group lagged well behind those for the base-year sample. Resurvey individuals did not receive spring 1972 familiarization; the tracing information (only the addresses on file at the high school graduated from, more than a year before) was much less complete; NLS involvement was lacking, and the known mobility of this age group made all contacts difficult--all of these were detrimental to the overall response rate.

Table 4-5. Response Rate, Weeks after Mailings

Weeks Elapsed	Base-Year Participants Rate	Resurvey Participants Rate	Difference	Overall Response Rate
2	28.0%	13.6%	14.4%	24.8%
3	36.9%	19.2%	17.7%	33.0%
4	42.3%	23.4%	18.9%	38.1%
5	46.5%	27.1%	19.4%	42.2%
6	50.1%	29.8%	20.3%	45.6%
7	55.3%	34.9%	20.4%	50.8%
8	59.1%	38.9%	20.2%	54.6%
10	64.0%	43.5%	20.5%	58.4%
15	65.2%	47.1%	18.1%	61.5%

3. Personal Interviews

Under a contract between USOE and the Bureau of the Census, tracing information on 8,549 mail nonrespondents (appended to blank questionnaires) was turned over by RTI to Bureau workers early in January 1974. This had been preceded by preliminary December listings of nonrespondents distributed by zip code and Bureau districts so the districts could plan workloads.

Although the purpose was to locate and obtain personal interviews with all nonrespondents, a restriction of 50 miles had to be imposed due to the emerging fuel crisis beyond which a telephone interview would have to suffice. This telephone interview contained a subset of 22 key questions--those deemed most critical for analyses--because the entire questionnaire was too long for effective telephone interview.

Fieldwork began in late January 1974. By the end of March all interviews (personal and telephone) had been completed for all available sample members. Of the 8,549 cases referred, 7,331 were interviewed, for a gross completion rate of the interview subsample of 85.8 percent. For personal interview, administration time averaged 45 minutes; by telephone it was about 15. Just over 10 percent of these cases were completed by telephone.

4. Checks on Data Quality

In November 1973, editors were recruited and trained to perform data quality checks as the first follow-up returns came in. Each returned survey instrument was scan-edited page by page to detect critical omissions and inconsistencies. The scan-edit averaged 15 minutes per questionnaire. This review was designed to verify--

That in general, the respondent had understood and followed the instructions (i.e., he had not given obviously false or capricious responses or in some other way shown an insincere effort in completing the questionnaire;

That the major critical skip patterns were correctly interpreted and that no block of applicable items was omitted;

That each instrument was properly identified and all items required for tracing were completed;* and

That questions deemed critical for minimal analyses relevant to survey objectives, were answered adequately.

Critical items selected for review included up to 22 questions, depending on skip patterns; these covered:

- Current activities and plans,
- Education and training since high school,
- Civilian work experience since high school,
- Military service, and
- Background (tracing) information.

The list of key items is in chapter III. Only key questions were examined for clarification or correction by the respondent. No other information was checked. The goals were not only to obtain answers to key questions but also to insure that the answers were consistent among themselves. Tables 4-6 and 4-7 show the results of the premachine manual edit for mail and Census Bureau completions.

If a questionnaire failed the edit checks, its problems were noted on an Edit Problem Sheet, the sheet and the questionnaire were routed to the Tracing Department, and the staff (also trained editors and interviewers) telephoned the respondents. A total of 28.9 percent or 4,022 mail questionnaires failed to meet

*This verification was used in the check-in process and in the data quality checks because the critical nature of these items justified the added cost.

Table 4-6. Telephone Follow-ups of Mail-Return Questionnaires That Failed Edit Specifications

Response Category	Mail-Return Questionnaire*					
	Form A		Form B		Total	
	Number	Percent	Number	Percent	Number	Percent
All items completed	2,828	94.8	947	91.1	3,775	93.9
One or more key items not completed	22	0.7	25	2.4	47	1.2
Refusals	8	0.3	4	0.4	12	0.3
Respondents in overseas military	25	0.8	9	0.9	34	0.8
Respondents without telephones	53	1.8	26	2.5	79	2.0
Respondents with unpublished numbers	8	0.3	3	0.3	11	0.3
Other	38	1.3	26	2.5	64	1.5
Total	2,982	100.0	1,040	100.0	4,022	100.0

*Clarifications of Forms A and B of the First Follow-Up Questionnaire continued through 29 April 1974.

Table 4-7. Telephone Follow-ups of Census Questionnaires That Failed Edit Specifications

Response Category	Bureau of Census Questionnaire*					
	Form A		Form B		Total	
	Number	Percent	Number	Percent	Number	Percent
All items completed	24	96.0	7	77.8	31	91.2
One or more key items not completed	0	0.0	1	11.1	1	2.9
Refusals	1	4.0	0	0.0	1	2.9
Respondents without telephones	0	0.0	1	11.1	1	2.9
Total	25	100.0	9	100.0	34	100.0

*Clarifications of these questionnaires continued through 29 April 1974.

the minimum requirements established and were turned over to the Tracing Department for telephone follow-up; of these, 3,822 or 95.0 percent were completed successfully. Of the 34 Census Bureau questionnaires that failed edit specifications, 31 (91.2 percent) were successfully completed.

E. Telephone Survey

A telephone interview was conducted for a small subsample (N = 393) of those who had not responded by mail as of 17 December 1973. The primary purpose was to find out some reasons for mail nonresponses. The survey was conducted by the Telephone Tracing Department during the period 18-28 December 1973 with 298 base-year and 95 resurvey nonrespondents selected by random sampling. There were 220 (56 percent) sample members contacted, of whom 169 were base-year participants and 51 were resurvey members. Also, 98 family or household members were contacted (83 base-year). Reasons for nonresponse varied widely, including 19 who said they "never got the questionnaire," 26 who "lost the questionnaire," and 49 who "haven't had time."

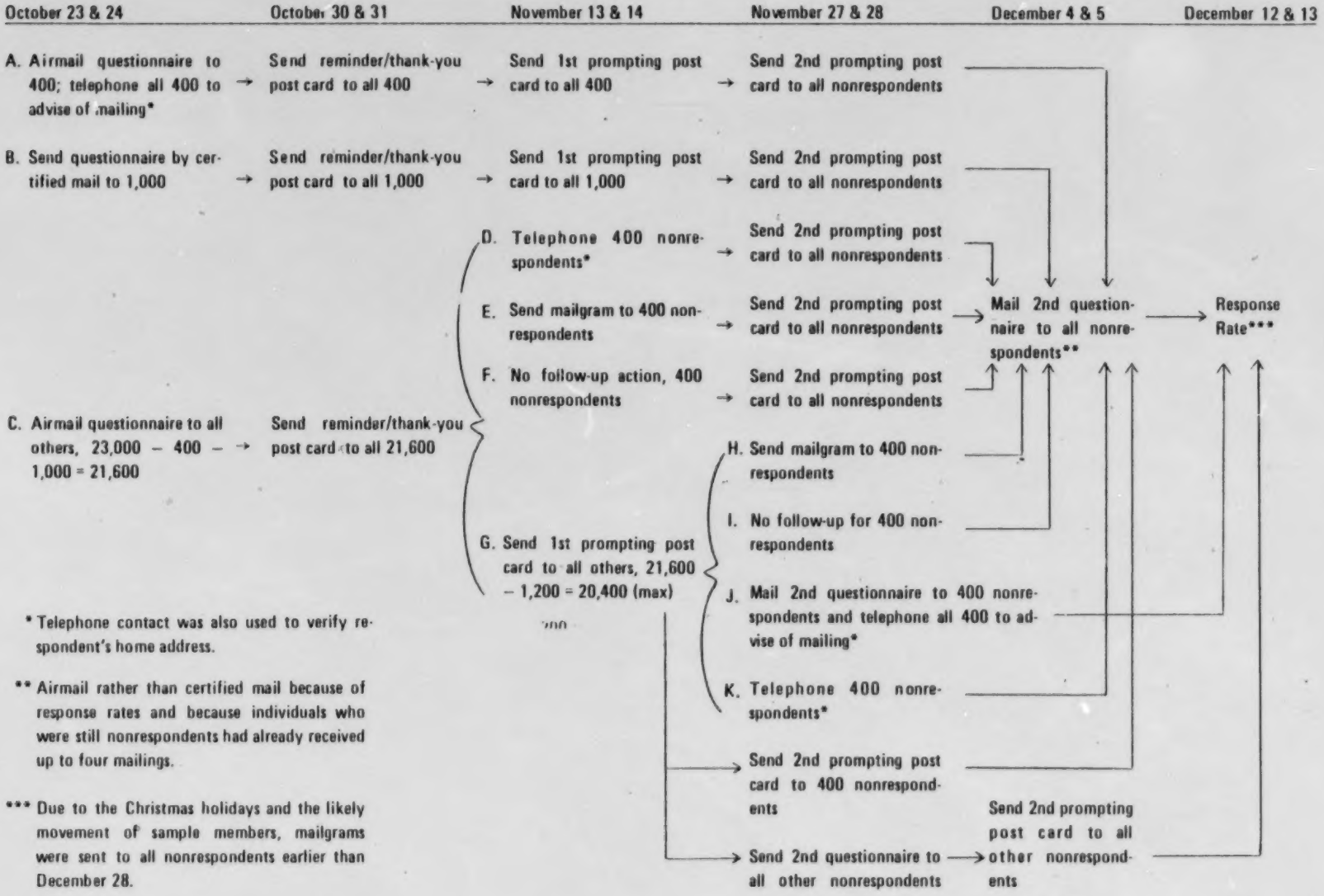
A secondary purpose of this telephone survey was to probe for actions to improve the response rate. Only 90 persons answered in this regard and of the 540 total responses given (90 respondents x 6 answers each), only 33 percent were positive about the various suggestions (e.g., "receiving more information about the study," "receiving a $5 incentive.")

F. Special Study

Knowing that NLS would continue beyond the first follow-up, RTI developed a plan to give NCES information for improving strategies for subsequent efforts without disrupting the ongoing high-response-rate efforts. Figure 4-2, the design of the follow-up procedure just discussed, indicates special supplementary samples and activities. It was not developed as a rigorous design to be used for comparisons of experimental treatments, but more as a practical guide for future NLS work.

Broadly speaking, this special study was designed to compare (1) air mail and certified mail questionnaires, (2) telephone calls prior to the respondents' receipt of the questionnaires and prompting calls made after receipt, and (3) mailgrams and prompting post cards. Table 4-8 indicates for each group shown in Figure 4-2 the date, the action, and the subgroup response rates as of 4 January 1974. All of the 999 sample members who were sent certified mail questionnaires were base-year participants. Even correcting for resurvey members among the other two initial groups, certified mail responses were about 10 percent over air mail responses. Telephone contact had the highest impact on response rate. It was also by far the most expensive. Based on the costs and the needs to reach a large number of nonrespondents in a short time, mailgrams appeared to be the most cost effective.

Figure 4-2. SPECIAL STUDY PLAN: NLS MAILOUT AND FOLLOW-UP PROCEDURES, 1973-74


October 23 & 24
October 30 & 31
November 13 & 14
November 27 & 28
December 4 & 5
December 12 & 13
A. Airmail questionnaire to 400; telephone all 400 to advise of mailing*
Send reminder/thank-you post card to all 400
Send 1st prompting post card to all 400
Send 2nd prompting post card to all nonrespondents
B. Send questionnaire by certified mail to 1,000
Send reminder/thank-you post card to all 1,000
Send 1st prompting post card to all 1,000
Send 2nd prompting post card to all nonrespondents
D. Telephone 400 nonrespondents*
Send 2nd prompting post card to all nonrespondents
E. Send mailgram to 400 nonrespondents
Send 2nd prompting post card to all nonrespondents
F. No follow-up action, 400 nonrespondents
Send 2nd prompting post card to all nonrespondents
Mail 2nd questionnaire to all nonrespondents**
Response Rate***
C. Airmail questionnaire to all others, 23,000 – 400 – 1,000 = 21,600
Send reminder/thank-you post card to all 21,600
H. Send mailgram to 400 nonrespondents
I. No follow-up for 400 nonrespondents
G. Send 1st prompting post card to all others, 21,600 – 1,200 = 20,400 (max)
J. Mail 2nd questionnaire to 400 nonrespondents and telephone all 400 to advise of mailing*
K. Telephone 400 nonrespondents*
Send 2nd prompting post card to 400 nonrespondents
Send 2nd questionnaire to all other nonrespondents
Send 2nd prompting post card to all other nonrespondents

* Telephone contact was also used to verify respondent's home address.

** Airmail rather than certified mail because of response rates and because individuals who were still nonrespondents had already received up to four mailings.

*** Due to the Christmas holidays and the likely movement of sample members, mailgrams were sent to all nonrespondents earlier than December 28.

Knowing the response rates (Table 4-8) for procedures, and their costs and scheduling requirements, NCES and RTI decided in early December 1973 to send mailgrams to all nonrespondents; based on data at hand, the final response rate with this procedure was expected to be close to 60 percent. The 10,313 mailgrams sent on 13 and 14 December had an even more positive effect than anticipated. The overall response rate was 61 percent. Admittedly, it is hard to know how many without this effort might have come in from the college students who had spare time during the holiday season or who returned home for vacation and found the questionnaire there.

Table 4-8. Special Study Mail-Return Response Rates as of January 4, 1974

Date and Event*			1973-74 Number Mailed	1973-74 Number Contacted	1973-74 Number Returned	Subgroup Response Rate
10/23	A.	Telephone/Air Mail	404	318	273	85.8%
	B.	Certified Mail	999	913	690	75.6%
	C.	Air Mail	21,251	20,762	13,170	62.4%
11/13	D.	Telephone	400	365	251	63.8%
	E.	Mailgram	398	386	198	51.3%
	F.	No Follow-up	400	400**	184	46.0%
11/27	H.	Mailgram	400	394	153	38.8%
	I.	No Follow-up	400	400**	116	29.0%
	J.	Telephone/Mail	399	330	183	55.5%
	K.	Telephone	400	350	198	56.6%

*See Figure 4-2. **Estimated.

G. Resurvey School Data Collection

During the week of 18 March 1974, a packet was sent to resurvey schools. In it were a computer listing of the resurvey students selected to participate, two copies of the School Questionnaire, individually labeled Student Record Information Forms for each sample member, instructions for completing these items, a postpaid return post card for acknowledging receipt of these materials, and a postpaid return envelope for mailing completed materials to RTI. No Counselor Questionnaires were requested. As in the base-year survey, participating schools were paid $40 honararia to cover the cost of data collections.

At RTI during the following week, post cards acknowledging receipt of packets began arriving and survey specialists began receiving telephone calls from resurvey schools (about 100) regarding problems--namely, confusion over ID numbers; the need for maiden names; misunderstandings of the SRIF's; and permission codes and signature verifications for permission. By the 26 April

deadline for receipt of data collection materials, 155 acknowledging post cards and 85 completed packets had been received. RTI made prompting telephone calls to the schools from whom post cards, but no data collection packets, had been received. No responses had been received from 105 schools; these 105 received reminder telephone calls from the NCES project director.

About 23 May, mailgrams and letters were sent to 1,344 resurvey members who had neglected to sign the permission line for acquiring SRIF data. In the fall of 1974, a final effort was made to secure the remaining SRIF's: the resurvey schools were asked to submit transcripts only for remaining resurvey students, and RTI staff transferred the data to SRIF's.

H. First Follow-Up Data Collection Summary

The first step in data collection for the first follow-up involved an extensive tracing operation to update name and address files received from the previous contractor for the base-year survey. A total of 18,672 of these individuals from 1,043 schools were used for the first follow-up survey. In addition, individuals from 257 resurvey schools were added to the base-year lists to give a first follow-up survey sample of 1,300 schools and 22,654 individuals. Newsletters were developed and mailed not only to encourage participation but also to use as a vehicle for updating names and addresses. When mail was returned by the postal service as undeliverable, telephone tracing procedures were used to obtain current addresses where possible.

Questionnaires were mailed to the last known addresses of the sample of 22,654 on 23-24 October 1973. This was followed by a planned sequence of reminder post cards, additional questionnaire mailings, and reminder mailgrams to nonrespondents. Active mail-return efforts continued through December 1973; by early February 1974, the questionnaire-return rate by mail was 61.5 percent. Questionnaires continued to arrive through the mail during the field interview phase of the survey.

The names and addresses of those sample members who failed to mail back their questionnaires were then turned over to the Bureau of the Census for personal interview in accordance with a Bureau arrangement with USOE. This personal interview phase of first follow-up data collection continued until April 1974, at which time the overall response rate had been increased to 94.2 percent, 21,350 respondents out of 22,654.

I. Recommendations

Recommendations based on the special study of the first follow-up survey are for improvements in the questionnaire, the prequestionnaire letter, the newsletter, the ID card, and the mailout plan.

1. Simplify the Questionnaire

Directions and procedures for answering questions and following skip patterns need to be improved to elicit correct answers to appropriate questions. An example is needed on the inside of the front cover to show how to answer questions.

2. Prepare an Advisory Letter

Several weeks before the questionnaire mailout, an advisory letter should be sent to parents of sample members whose first follow-up address is the same as that of the parents. This letter would explain that a package of survey materials for their son or daughter (a 1972 senior) will arrive within a few weeks, and it would ask the parents to either forward the package (instead of holding for the return from college, etc.) or to call RTI collect with another address for a second mailing.

Approximately 1 week before the questionnaire mailout, a brief advisory letter should be mailed to all sample members at their most likely address at the time of survey to explain that they should be receiving survey materials within 10 days by certified mail. Certified mail is one way to imply importance and to elicit responses at minimal cost.

3. Use Mailgrams and Prompting Post Cards

Half of the nonrespondents to the first questionnaire mailout of the second follow-up should be sent mailgrams; the other half, prompting post cards. For the second questionnaire mailout, this should be reversed: those who received mailgrams before should receive post cards, and vice versa. Total responses to these two should help determine the cost effectiveness of mailgrams.

4. Improve the Newsletters and ID Cards

The newsletter should contain more results-oriented data to elicit interest in the growth and activities of the class or age group. Adoption of a newspaper format and inclusion of personal interest stories about sample members, staff, and processes should be helpful.

Several hundred ID cards were returned in 1973-74 with correct addresses; however, the respondent's name and address were easily smudged and became illegible. A new, noncarbon format should be adopted.

5. Consider Other Tracing Aids

Time lapses between data collections (15 months elapsed between base year 1972 and the first 1973 mailout of newletters) can decrease the efficiency of tracing efforts. Therefore, new tracing aids should be considered for

improving follow-ups. Even though the use of the credit bureau system was not helpful in the first follow-up, it may be that as study members mature and establish their own households it can be a useful, low-cost source of tracing information.

Chapter V

PREPARATION OF THE NLS DATA FILES

A. Introduction

Questionnaires returned by mail, either from individual sample members or from Bureau of the Census interviewers, were routed on a flow basis to a central check-in point. First, each respondent's ID number and batch number were transmitted to the data processing section for a daily count of the questionnaires received. Then, batches were routed to the premachine (manual) editing section to see if each questionnaire contained the minimum set of key data. Questionnaires which passed this check were transmitted to the direct data entry section to be transformed into machine readable form. Questionnaires which failed the check were routed to the Telephone Tracing Department for contacts with the respondents to resolve problems uncovered in manual edit; after resolution, the questionnaires were transmitted to the direct data entry section for encoding. At each point along the route, events were entered into the automated survey support system so there would be constant monitoring of the location of all questionnaires in the document flow process.

After data were encoded, questionnaires were placed in temporary secure storage prior to microfilming and eventual destruction. (Microfilming of the first follow-up data was completed in the summer of 1974). The microfilming was initiated to provide greater assurance of confidentiality, to simplify accessibility of original data, to reduce storage costs (several tons of hard copy were transferred to microfiche), and to insure against loss by separate storage of a second filmed copy.

B. Premachine Editing

The premachine editing centered around the following ideas: if "key" questions were answered or could be presumed by responses to related items, a questionnaire would be accepted--no matter how little other information was given; however, if any key data (described in chapter III) were missing, the respondent would be telephoned to complete the record.

After a questionnaire had passed the editing requirements, the alphabetic data in a few parts of the questionnaire were manually coded into numeric form before transformation into machine readable form. Two questions (49a,55a) about job area or occupation for 1972 and 1973 were transformed into the corresponding 3-digit codes specified in the Census Occupational Classification System; the

parental occupation question (79) was likewise coded.* Postsecondary school identification (college, university, vocational/technical) was transformed into 6-digit FICE** codes by using a master index provided by USOE. For fields of study (22b,26a,36a,60b), both the 4-digit academic subdivisions provided by the HEGIS (Higher Education General Information Survey) taxonomy and the 6-digit HEGIS technological and occupational schemes were used.† Finally, the responses to question 43b were coded numerically to indicate type of license, certificate, or diploma.††

There were 18 questions in the First Follow-up Questionnaire for which respondents could select either fixed-choice (closed-response) answers or write in answers for the "other" option. In every case possible, the "other" option was reclassified by the manual editors into the fixed-choice options; when reclassification was not obvious or logical, the "other" was retained in the coding, but the alphabetic description was not included on the data file. There were four questions (44ba,69b,69c,70b) in the First Follow-up Questionnaire that were not numerically coded (i.e., they were coded as written on the questionnaire).

NLS first follow-up data were transformed to machine readable form by using direct data entry programmable terminals. Major advantages of this procedure were higher speed, fewer processing steps, and lower transcription error rate. The overall error rate was less than 0.3 percent. The terminals were programmed to accept a specific range of values for most of the data and specific field widths for all data. Response ranges for fixed-format variables decided upon prior to data entry were programmed for the terminals; other responses were coded to indicate they were outside of the ranges.

C. Error Coding

A set of "error" codes was applied uniformly across the file to indicate classes of erroneous or missing data. The codes are explained below:

93--Partial response. Used for questions with the two-column response format to indicate whether each subitem applies or not. § If at least one was answered, the unanswered subitems were coded 93.

94--Don't know. (self-explanatory).

---

*Codes are in appendix C of the Base-Year and First Follow-Up Data File Users Manual, listed in appendix A of this report. This document is hereafter referred to as the Data File Users Manual or the Users Manual.

**FICE codes are 6-digit serial numbers used to identify U.S. institutions of higher education (those offering two or more years of college); these codes are available in NCES directories and from the OE computerized Vendor's File.

†Appendix D-1, Users Manual. ††Appendix D-2, Users Manual.

§First follow-up questions that received 93 codes were 1, 16, 22a, 24, 29b, 31, 35, 38, 44b, 48b, 54b, 62, 63, 71, 76.

95--Out-of-range.response. Used when a response or transcription exceeded an acceptable range (described more fully in the next section.)

96--Multiple response. Used when there were several answers to a question when the directions call for only one.

97--Refusal. (self-explanatory)

98--Blank, or nonresponse. Used for nonresponse cases not identified as legitimate nonresponse (see code 99 and section D-3 below).

99--Legitimate nonresponse. Used when the respondent should not and did not answer the question (i.e., he was routed around it) or did not answer an entire instrument. In the latter case, all fields were coded 99 (see section D-3 below).

The above error codes were applied to items with 2-digit fields only; these are by far the most common type in the file. For items with 3-digit fields, the error codes have two leading nines followed by the digit indicating the error class--that is, 993 through 999. For 4-, 5-, and 6-digit fields, the number of leading nines was increased accordingly.

D. Machine Editing

Preparing the NLS data tapes for public release required "hard copy" (source document) spot checks and machine editing to recode all uninterpretable responses and some logical recoding of the responses. Thus, the final data file contains only valid response codes, erroneous or missing data codes, and "logically recoded values" with indicators for the reason for recoding (section 3 below).

Three machine-editing programs--range checks, consistency checks, and routing checks--were used sequentially for the first follow-up data. These programs were not applied to the NLS base-year data; these data, edited by the previous contractor, were either reformatted or recoded to achieve consistency with the first follow-up data on file.

1. Range Checks

The first program checked the responses to each fixed-choice item against a range of acceptable values and "flagged" and recoded with 95 any value outside of the range. Acceptable ranges for 72 numerically coded open-response items and the number of responses outside these ranges are tabulated in Table 5-1. In almost all cases, some responses were outside of these ranges. In general, these responses were logically possible but highly improbable. It was felt that some outlying responses could provide additional data and that it was best to leave them in the field to provide as faithful a transcription of the original records as possible.*

*Computer tapes are available with the out-of-range values replaced by the appropriate 95 out-of-range code.

Table 5-1. Out-of Range Responses to Free-Response Questions Calling for Numeric Answers

Open-Response Question Number	Range of Acceptable Values*	Number of Out-of-Range Responses*	Open-Response Question Number	Range of Acceptable Values*	Number of Out-of-Range Responses*
3A	1-12	6	47BB	0-9,000	1
3B	71-73	15	47CB	0-9,000	0
7B	1-12	6	47DB	0-9,000	0
7C	67-74	2	47EB	0-9,000	0
8B	1-4	1	47FB	0-9,000	0
11A	0-20,000	39	47GB	0-9,000	0
11B	0-20,000	16	49FA	1-12	5
11C	0-20,000	28	49FB	63-74	26
11D	0-20,000	6	50A	1-50	684
11E	0-6,000	7	50B	0-1,000	83
11F	0-6,000	1	55FA	1-12	7
11G	0-10,000	7	55FB	63-72	164
11H	0-10,000	0	55GB	1-12	27
27AA	1-12	4	55GC	72-74	41
27AB	68-73	9	56A	1-50	539
27C	0-50	38	56B	0-1,000	75
33AA	1-12	2	58A	0-52	51
33AB	68-72	125	58B	0-52	2
33C	0-50	57	58C	0-92	0
40CA	1-12	1	66B	1-12	3
40CB	68-74	4	66C	68-74	3
40DB	1-12	2	66D	1-12	2
40DC	68-74	1	66E	69-72	7
41CA	0-92	0	67A	1-12	4
41CB	0-92	0	67B	72-74	10
41CC	0-120	21	74B	1-12	6
46AA	0-9,000	1	74C	68-74	23
46AB	0-12	176	82DA	0-9,000	0
46BA	0-5,000	21	82DB	0-9,000	0
46BB	0-2,000	65	82DC	0-9,000	0
46BC	0-1,000	47	83DA	0-9,000	0
46BD	0-1,000	73	83DB	0-9,000	0
46BE	0-1,000	115	83DC	0-9,000	0
46BF	0-9,993	0	84DA	0-9,000	2
46BG	0-4,000	29	84DB	0-9,000	0
47AB	0-9,000	3	84DC	0-9,000	1

*Ranges and frequencies listed in detail in appendix J, Data File Users Manual.

2. Consistency Checks

The second program checked the consistency of an individual's responses over the entire questionnaire against a set of 94 internal checks (or response comparisons) selected a priori. The program read the responses and flagged those which were failed; then an index was computed for each record to indicate the internal consistency and to provide the user a rough indication of data quality.

3. Routing Checks

The First Follow-up Questionnaire contains 33 questions that either implicitly or explicitly directed a respondent around those questions that did not apply. To determine if the respondent correctly followed the routing patterns, a routing-check program was developed and implemented. It read each record and flagged responses that were inconsistent with the subsequent pattern of response. The flags indicated the type of inconsistency detected:

a. Inconsistency occurring when the response to a routing item indicates that the questions within the routing pattern should have been skipped but were not. These were recoded by adding 20 to the original response code.

b. Inconsistency occurring when the response to the routing item indicates that the questions should have been answered but were not. Recoding added 40 to the original response code.

c. Inconsistency occurring as a combination of the first two types when the response to the routing item indicates that certain questions which should have been skipped were not (type a) and others should have been answered and were not (type b). Recoding added 60 (20 + 40) to the original response codes.

Examples in the Users Manual clarify the testing and recoding procedures employed by the routing-check edit program, and appendix E.1 of the manual lists codes for consistent and inconsistent responses to the 33 routing questions in the questionnaire.

The routing-check program also differentiated between legitimate nonresponse (code 99) and illegitimate nonresponse (code 98). Legitimate nonresponse pertains to questions that the respondent was routed around. If a respondent was routed into a block, any nonresponse to those items is illegitimate; if the routing pattern is answered inconsistently (20, 40, or 60 added to it) with the routing instructions, any nonresponse to those items is illegitimate. The only time that a nonresponse was coded 99 was when there was an unflagged response to the question that routed the respondent around a group of questions. If a response pattern did not clearly indicate which questions the respondent should have answered, the nonresponse was coded 98. In some of the

more complex routing patterns, nonresponse was coded 98 for a large section of items due to one inconsistency. The user should be careful in interpreting the 98 and 99 codes to avoid overestimating the number of illegitimate responses.

For some analyses, the user may wish to redefine legitimate and illegitimate skips. Appendix E.2 of the Users Manual lists all the questions in the first follow-up that should be checked because they are inside of one or more routing patterns. A question not in this listing is not in any routing patterns. To determine the legitimacy of nonresponse, all of the routing questions that cover a question should be considered.

E. The NLS Data File Indices

Two kinds of composite indices--quality and analytic--were developed and placed in the NLS data file. The quality indices quantify the amount and quality of data in the individual record. The analytic indices (derived from global considerations of the entire file) are classification variables used to group the individual records.

1. Quality Indices

Four quality indices were developed to quantify the amount and quality of First Follow-up Questionnaire data in each record. Each index was allocated a three-digit field on the record. Table 5-2 presents the quality indices.

Consistency index (CS) represents the percentage (truncated set of 94 checks) failed by an individual. The index was computed as

$$CS = \frac{\sum_{i=1,94} X_i}{94} \cdot 100$$

where X_i is 0 if respondent passed or 1 if failed check i.

Out-of-range index (OR) represents the percentage of out-of-range responses for an individual. It was computed as

$$OR = N/D \cdot 100$$

where N is the number of items coded 95 (out-of-range) and D is the number with response other than 99 (legitimate skip).

Routing index (RI) represents the percentage of routing questions ambiguously answered (i.e., unanswered or answered inconsistently with the subsequent response pattern). The index was computed as

$$RI = N/D \cdot 100$$

where N is the number of flagged routing questions and D is the number of routing questions with responses other than 99.

Table 5-2. Quality of Individual Responses to First Follow-up Questionnaire

Quality Indices	Data File Code	Questionnaire Responses N	%
1. Consistency index	0*	9,574	44.84
	1	5,781	27.07
	2	3,204	15.00
	3	1,321	6.19
	4	670	3.14
	5	323	1.51
	6-100	477	2.23
2. Out-of-range index	0**	19,018	89.10
	1	2,066	9.67
	2	145	0.68
	3	50	0.23
	4	33	0.15
	5	6	0.03
	6-100	32	0.15
3. Routing index	0+	12,187	57.08
	3-5	4,403	20.62
	6-10	3,147	14.74
	11-15	1,024	4.80
	16-25	473	2.22
	26-35	85	0.40
	36-100	31	0.15

4. Completion Index	Questionnaire Sections									
	A		B		C		D		E	
%	N	%	N	%	N	%	N	%	N	%
100-91++	4,074	19.08	6,854	32.11	16,494	77.26	20,394	95.53	17,077	79.99
90-81	10,203	47.79	6,232	29.19	920	4.31	86	0.41	913	4.28
80-71	3,558	16.67	1,907	8.94	920	4.31	79	0.37	695	3.26
70-61	1,949	9.13	1,281	6.00	581	2.73	36	0.17	422	1.98
60-51	338	1.60	964	4.52	308	1.45	20	0.10	267	1.25
50-41	84	0.40	710	3.33	449	2.11	369	1.73	456	2.14
40-0	1,144	5.36	3,402	15.94	1,678	7.86	366	1.72	1,520	7.12

*0 means no consistency checks failed.

**0 means no out-of-range numeric responses.

+0 means no routing questions answered ambiguously.

++100% means all items completed.

Completeness index (CIA through CIE) represents the percentage of items with responses (not coded 93-98) for each of five sections (A-E) in the questionnaire. The index was computed as follows

$$CI_x = N/D \cdot 100$$

where x is the section (A,B,C,D, or E), N is the number of items with valid responses, and D is the number of items with responses other than 99.

Table 5-2 indicates lower completion rates for sections A and B of the questionnaire than for other sections. This result is artifactual and may be misleading. The major utility of this index is in judging the completeness of an individual's responses within a section, not between sections, because the sections vary in complexity, number of routing patterns, and types of information elicited. Section A contains fewer routing patterns than other sections, but contains some items (e.g., 1G, 16F) for which one may expect larger nonresponse; also, for example, the routing check rules for item 11 specify code 98 for all nonresponses and thus inflate the nonresponse. Review of the indices within a section will illustrate the typical completion rate and identify outlying individuals.

The utility of quality indices is in judging the credibility of individual records. They are of no use in judging data over respondents such as item responses, since the real test of item response quality is the over-subjects distribution. It is recommended that these indices not be used for discarding subjects unless one's concern is with either the entire instrument or subsection.

The machine editing indices just discussed were modified somewhat in developing a second level of edit version of the NLS data file--deliverable as a part of second follow-up survey work. Users of the second level of edit file should consult the Users Manual for that file.

2. Analytic Indices

Two composite indices--an ability index and a socioeconomic status (SES) index--involve several components each and required several steps during derivation. (Both are described in more detail in chapter VIII.) Since other components and procedures may be used in deriving such indices, users are encouraged to decide whether the indices included here are appropriate for their needs.

Ability Index. Each NLS participant's code of 1, 2, or 3 indicates an ability composite score in the lower, middle two, or upper quartile:

3 = upper quartile if > 225.7497,

2 = middle two quartiles if $\leq$ 225.7497 and $\geq$ 181.5461,

1 = lower quartile if < 181.5461.

These were derived from vocabulary, reading, letter group, and mathematics test scores. A simple sum over the four scores (each with a mean of 50 and a standard deviation of 10) was accepted as the general ability index because an analysis yielded a first principal component with essentially equal weights for the four and a rotated factor which explained the most common variance gave essentially the same result.

SES Index. Each NLS participant was also assigned 1, 2, or 3 indicating an SES composite score in the lower, middle two, or upper quartile:

3 = upper quartile if > +0.4735,

2 = middle quartiles if $\leq$ +0.4735, and $\geq$ -0.4735,

1 = lower quartile if < -0.4735.

The composite has five components: father's education, mother's education, parent's income, father's occupation, and household items. Factor analysis of the five revealed a common factor with approximately equal weights for each. Then each was standardized. An equally weighted combination of the five standard scores yielded the SES composite scores.

F. The NLS Data Files

Two data files were developed and derived: the NLS master file and the NLS release file. Each of them has a computer-generated NLS variable list and NLS response list to provide details of the data stored in each record of the file. The variable list contains the name and description of each variable, the field or character positions containing each variable, and a response list reference code for each variable. The response list catalogs the valid response codes for types of variables in the variable list.

The variable lists reveal that a number of the NLS variables (items) from the base-year and first follow-up were deleted from the master file to create the release file, primarily to protect the confidentiality of individual data. Others were deleted or modified due to excessive prior editing or poor response. The complete computer data file, or master file, for which general release was not contemplated, contains all data collected.

The variable list shows that the data in each record are, in general, grouped and ordered by identification codes, data indicators, Test Book data, SRIF data, Base-Year Student Questionnaire data, First Follow-Up Questionnaire data, quality indices, sampling weights, school data, analytic indices, and activity states.

The number of respondents and amounts of data available for subpopulations and for combinations of instruments for two survey periods are tabulated in Table 5-3. For more details of the release file, consult appendix F of the Users Manual.

Table 5-3. Number of Responses by Subpopulations to Survey Instruments

Population Group	SURVEY INSTRUMENT							
	B-Y, Base-Year Student Questionnaire	FFU, First Follow-Up Questionnaire	SRIF, School Record Information Form	TB, Test Book	B-Y and FFU	B-Y, FFU, and SRIF	B-Y, FFU, and TB	B-Y, FFU, SRIF, and TB
Sex								
Male	8,275	10,463	10,233	7,894	7,665	7,658	7,307	7,301
Female	8,397	10,841	10,376	7,953	7,967	7,957	7,553	7,544
Unclassifiable	13	46	42	12	3	3	3	3
Race								
White	12,656	15,272	14,721	12,111	11,949	11,938	11,442	11,433
Black	2,083	2,739	2,592	1,906	1,920	1,917	1,766	1,763
Other	1,605	1,829	1,816	1,508	1,468	1,465	1,379	1,376
Unclassifiable	339	1,510	1,522	334	298	298	276	276
H.S. Program								
Academic	6,811	8,511	8,312	6,531	6,468	6,465	6,204	6,201
General	5,665	7,492	7,253	5,363	5,235	5,224	4,955	4,944
Voc/Tech	4,201	5,148	5,063	3,956	3,927	3,924	3,699	3,698
Unclassifiable	6	199	23	9	5	5	5	5
Region								
North	3,618	4,483	4,316	3,521	3,420	3,420	3,323	3,323
Central	4,568	5,541	5,468	4,122	4,292	4,288	3,875	3,873
South	5,513	7,691	7,242	5,382	5,186	5,178	5,057	5,049
West	2,984	3,635	3,625	2,834	2,737	2,732	2,608	2,603
Unclassifiable	--	--	--	--	--	--	--	--
Ability								
Low	4,788	4,392	4,783	4,798	4,382	4,374	4,382	4,374
Medium	7,000	6,600	6,997	7,008	6,592	6,585	6,592	6,585
High	4,052	3,890	4,052	4,053	3,889	3,889	3,889	3,889
Unclassifiable	843	6,468	4,819	--	772	770	--	--
SES								
Low	5,076	6,423	6,227	4,775	4,735	4,729	4,458	4,453
Medium	7,816	9,635	9,393	7,448	7,320	7,310	6,971	6,962
High	3,667	4,686	4,499	3,525	3,506	3,505	3,370	3,369
Unclassifiable	124	606	532	111	74	74	64	64
Total	16,683	21,350	20,651	15,859	15,635	15,618	14,863	14,848

Chapter VI

WEIGHT CALCULATIONS

A. Introduction

The sample for the NLS study is highly stratified, multistage, and clustered. As a consequence of the complex design, each observation (response) must be weighted in order to obtain unbiased sample estimates of population parameters. For all students sampled, the unadjusted weights were calculated as the inverses of the probabilities of being included in the sample. For several sets of nonrespondents, adjusted weights were calculated using the weighting-class methods described herein.

B. Unadjusted Student Weights

First, it was necessary to determine which schools and students were "in sample" for the 1972 NLS project. The NLS sample design included 1,200 primary sample schools (2 per final stratum) and 21,600 students (18 per school). The number of schools was increased (up to 3 or 4 per stratum) by using backup schools in the base-year and first follow-up surveys and by obtaining responses from all primary sample schools in the resurvey. Included in the NLS sample were--

1,153 participating primary sample schools
21 nonparticipating (no 1972 seniors) primary sample schools
131 participating backup sample schools
18 extra base-year backup sample schools
16 augmentation sample schools

1,339 NLS sample schools

The release tape contains data for students representing 1,318 schools--all of the 1,339 schools in the final NLS sample except the 21 primary sample schools with no 1972 seniors (Table 6-1).

Table 6-1. Schools in the Final NLS Sample

School Sample	Base-year Survey	Resurvey	First Follow-up Survey	Final NLS Sample
Primary sample	948	205	1,153	1,153
Backup sample				
"Extra" in base year	26	--	--	18
Other	95	36	131	131
Augmentation sample	--	16T	16	16
Total	1,069	257	1,300	1,318

It would have been possible to reduce the number to the 1,200 originally intended, but this alternative was not chosen since considerable base-year student data would had to have been discarded. The alternative chosen was to include all sample schools with students who had completed either a Base-Year Student Questionnaire or a First Follow-Up Questionnaire.

1. School Selection Probabilities

For each school in the original 600 final strata, the sample inclusion probability, P_{hi}, was calculated as

$$P_{hi} = n_h \left(\frac{A_{hi}}{A_h}\right)$$

where n_h = number of schools in the final NLS sample for stratum-h,
A_{hi} = size measure for school-i of stratum-h, and
A_h = sum of size measures for all schools in stratum-h.

For schools in the smallest size strata (those with < 300 seniors), the size measure was either the estimated number of seniors in the school or 18, whichever was larger. For schools in the two largest size strata, the size measure was equal to one. Thus, schools in the smallest size strata were selected with probabilities proportional to the number of seniors, and schools in the two largest size strata were selected with equal probabilities.

A sample of 200 school districts was canvassed during the base year to identify public schools which were not in the sampling frame. A total of 45 schools were identified, and 23 were randomly selected as an augmentation sample.[1] School selection probabilities, P_i, were calculated for each of the 45 schools, as suggested by the NLS sampling contractor.[2] The 16 participating augmentation schools were grouped into strata (h = 601, 602, ..., 608). For these 16 schools, the sample inclusion probabilities, adjusted for school nonresponse, were calculated as

$$P_{hi} = \left(\frac{16}{23}\right) \left(\frac{1}{2}\right) P_i \quad .$$

2. Student Weights

The number of students from each sample school was taken as the number of eligible students offered a chance to be in the sample. This included all sample eligibles (respondents and nonrespondents), but excluded ineligibles such as dropouts, early graduates, and adult education students.

There were 23,451 sample students, of whom 16,683 completed a Base-Year Student Questionnaire and 21,350 completed a First Follow-Up Questionnaire. For each of the 23,451 selected students, the unadjusted student weight, W_{uhij}, was calculated as

$$W_{uhij} = \frac{1}{P_{hi}} \cdot \frac{N_{hi}}{n_{hi}}$$

where N_{hi} = number of senior students in school-hi, and

n_{hi} = number of sampled students in school-hi.

The sum of the unadjusted student weights is an estimate of the total number of 1972 high school seniors in the population. If all of the selected students had completed the survey instruments, these weights would be appropriate for the analyses of student data.

C. Nonresponse Adjustments

Handling nonresponse when analyzing survey data is a problem. In general, the mean values of most survey variables are different for respondents and nonrespondents. If the differences are large or if the survey response rates are low, adjustments are used in an attempt to reduce the bias due to nonresponse.

A weighting-class method was used to adjust the NLS student weights for questionnaire nonresponse, but not for item nonresponse within completed questionnaires. Different response rates for students in different weighting classes were reflected in the adjustments. The method involved partitioning the entire sample (respondents and nonrespondents) into weighting classes--homogeneous groups of students with respect to the survey classification variables.

1. Classifier Variables

The five classifier variables used to define weighting classes were:

Race--white or nonwhite;

Sex--male or female;

High school curriculum--general, academic or vocational/technical;

High school grades--B or better, or C or below; and

Parents' education--less than high school graduate, high school graduate, some beyond high school, or college graduate.

For the values of the classifier variables, the SRIF's, Base-Year Student Questionnaires, and First Follow-Up Questionnaires were potential sources. (Sex was determined from the student name if no other information was available.) Values for all five variables were determined for over 84 percent of the 23,451; values for at least three variables were determined for 95 percent. The most frequent value was imputed (for weighting) for missing values.

The crossing of the five classifier variables yielded a table with 96 cells (2 x 2 x 3 x 2 x 4). The combining of cells with fewer than 20 respondents with similar cells yielded 87 weighting classes. Within each weighting class, the respondents' unadjusted weights were divided by the weighted response rate for that class to get the nonresponse adjustments. Six sets of adjusted weights were calculated--each set appropriate for analyses using a particular data set described in section 3 below.

2. Weight Adjustment Formulae

For each student-j selected from school-hi and classified in weighting class-k (k = 1,2, ..., 87), the K_{hij} and L_{hij} were defined:

$$K_{hij} = \begin{cases} 1 \text{ if student-hij belongs to weighting class-k, or} \\ 0 \text{ otherwise; and} \end{cases}$$

$$L_{hij} = \begin{cases} 1 \text{ if student-hij completed the questionnaire(s) to be in data set-}\ell, \text{ or} \\ 0 \text{ otherwise.} \end{cases}$$

Then the nonresponse weights for data set-ℓ (ℓ = 1,2, ...,6) were computed as

$$W_{hij(k)\ell} = W_{uhij} L_{hij} \frac{\sum_{hij} K_{hij} W_{uhij}}{\sum_{hij} K_{hij} L_{hij} W_{uhij}} .$$

3. Adjusted Weight Sets

Table 6-2 shows the number of sample students in each of five response groups, determined by which questionnaires the students completed: 16,683 (groups I and II) completed the Base-Year Student Questionnaire; limited base-year data were collected using Form B during the first follow-up survey from additional sample students (resurvey respondents) who had not completed the Base-Year Student Questionnaire. Thus, data for base-year items 2, 5, 8, 10, 16, 27, 83, 84, 88, 91, 92, 93, 94, and 95 (items 86-99, First Follow-Up Questionnaire Form B) were obtained from 21,222 students (groups I, II, and IV). Two sets of nonresponse adjusted student weights were computed for analyses of base-year data--W2 for analyses of the 14 base-year items listed above and W1 for all other base-year questionnaire items.

There were 21,350 respondents (groups I, III, and IV) to the First Follow-Up Questionnaire. The W3 weights are appropriate for analyses of items from this questionnaire only.

Analyses of change (or transition) variables derived using both base-year and first followup items should be carried out using either the W4 or the

Table 6-2. Groups Defined by Questionnaire Responses

Response Group	Completed Base-Year Student Questionnaire	Completed First Follow-Up Form A	Completed First Follow-Up Form B	Number of Students
I	yes	yes	no	15,635
II	yes	no	no	1,048
III	no	yes	no	1,176
IV	no	no	yes	4,539
V	no	no	no	1,053

W5 weights: W5 for the change variables defined using base-year items 2, 5, 8, 10, 16, 27, 83, 84, 88, 91, 92, 93, 94, and 95; W4 for those based on other base-year items in conjunction with first follow-up items. Matched base-year and first follow-up data are available for 15,635 students (group I) for most variables and for 20,174 students (groups I and IV) for the 14 base-year variables listed above.

The last set of weights (W6) is appropriate for analyses involving every student on the NLS release tape. There are 22,398 student records (groups I, II, III, and IV) on the tape--one for each student who completed a Base-Year Student Questionnaire and/or a First Follow-Up Questionnaire. The remaining 1,053 students (group IV) who did not complete either questionnaire (but are in the sample) do not appear on the release tape. However, they do appear on the master data file.

The user should choose the set of adjusted weights which is appropriate to the data set and variables to be analyzed. Table 6-3 lists the data set and variables appropriate to the weight sets--W1, W2, W3, W4, W5, and W6. For each weight set, the adjusted weights for nonrespondents are zero and the sum of the respondents' adjusted weights equals the sum of the unadjusted weights for the entire sample.

As mentioned previously, the weights are adjusted only for questionnaire nonresponse, not for item nonresponse. The same method could be used to obtain another set of weights, adjusted for both questionnaire and item nonresponse, for any questionnaire item or variable. In most cases, the gains from such an adjustment would not be expected to outweigh the additional cost.

Table 6-3. Weights Appropriate for Data Sets and Variables

Weight Set	Response-Group Data Set	Survey Variables
W1	Respondents to Base-Year Student Questionnaire (B-Y)	Variables defined by items from base-year Student Questionnaire (B-Y)
W2	Respondents to the B-Y or the First Follow-Up Questionnaire Form B (FFU-B)	Variables defined by B-Y items 2, 5, 8, 10, 16, 27, 83, 84, 88, 91, 92, 93, 94, and 95
W3	Respondents to FFU	Variables defined by FFU items
W4	Respondents to the B-Y and the FFU Questionnaires	Change variables defined by items from both the B-Y and the FFU Questionnaires
W5	Respondents to either the B-Y and the FFU-A, or the FFU-B	Change variables defined by B-Y items 2, 5, 8, 10, 16, 27, 83, 84, 88, 91, 92, 93, 94, and 95 and the FFU items
W6	Respondents to either the B-Y or the FFU	Variables with values defined from data available for each student in the release file

References to Chapter VI

1. Educational Testing Service.
   1973. The Base-Year Survey of the National Longitudinal Study of the High School Class of 1972--Final Report. Princeton, New Jersey.

2. WESTAT, Inc.
   1972. Sample Design for the Selection of a Sample of Schools with Twelfth-Graders for a Longitudinal Study. Rockville, Maryland.

Chapter VII

SAMPLING ERROR ESTIMATES

A. Methodology Considerations

Agencies that publish statistics have an obligation to indicate the approximate precision of the statistics. Most of the statistics calculated from the NLS First Follow-Up data base were estimated percentages of the total population and of numerous subpopulations; other statistics were mean scores and differences among the percentages. The procedure used to calculate the various estimates involved the use of a weight for each respondent in the sample. The raw weight for each selected individual was computed as the reciprocal of the probability of including that individual in the sample. The raw weights were then adjusted for nonresponse by a multiplicative factor depending on the weighting class of the respondent.* An individual was assigned to a weighting class based on his or her race, sex, parent's education, high school program, and average grade. The multiplicative factors for each weighting class were computed in such a way that the total adjusted weight for all respondents in the weighting class would be equal to the total unadjusted weight of all respondents as well as nonrespondents in the same weighting class. The sum of the individual weights was 3,043,599; this represents an estimate of the total number of students in the study population.

Since thousands of estimates were made, calculation of a sampling error (or standard error) for each estimate would have been expensive; and providing the standard error of each estimate would have doubled the number of table entries in each report. The alternative used in the NLS is to inform readers of the approximate precision by constructing generalized standard error tables. These tables express the standard error of an estimate as a function of both the estimated percentage (or mean) and the sample size on which the statistic was based. This approach is economical since standard errors need be calculated for only a sample of statistics and because only minimal space (i.e., a few generalized variance tables) is required to report the precision.

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*For more information on these weighting procedures, refer to Calculation of Nonresponse Adjusted Student Weights for Respondents to the NLS Base-Year and First Follow-Up Surveys, as listed in Appendix A of this report.

As in any sample survey, the results are subject to sampling and nonsampling (e.g., nonresponse, incorrect response) errors. The standard error of a statistic is a measure of its sampling variability. It reflects variation that occurs because a sample rather than the entire 1972 high school class was surveyed. The standard error may be used to infer how close the sample value is to the value that would have been obtained had a census been taken. Statements that "the census value is within one standard error of the estimated value" will be correct approximately 68 times out of 100.

B. Standard Errors of Percentages

Developing the table of generalized sampling errors for estimated percentages involved the following steps:

1. A sample of 16 First Follow-Up Questionnaire items was selected by RTI and NCES scientists to achieve breadth of questions. All 73 response options for those items were used. The items selected (with the question number and number of response options in parentheses) were:

   high school completion (Q2;3);
   person(s) living with (Q4;5);
   distance moved (Q6B;5);
   marital status (Q7A;4);
   educational aspirations (Q12;3);
   willingness to borrow for school (Q13A;8);
   educational expectations (Q14;3);
   positive self-attitude (Q15A;2);
   attitude toward planning and happiness (Q15F;2);
   plans for having children (Q17;3);
   importance of success at work (Q20A;3);
   importance of living near parents (Q20H;3);
   work status in October 1973 (Q48;2);
   military participation (Q64;3);
   activity in October 1972 (12); and
   activity in October 1973 (12).

2. Six domain-defining variables were selected to provide a total of 33 subpopulations (or domains). The variables were sex, race, SES, ability, high school program, and region. The domains were sex (2), race (3), SES (3), ability (3), region (4), high school program (3), sex versus race (6), and race versus SES (9).

3. For the total population and for each of 33 subpopulations (or domains) the standard error of the estimated percentage for each of the 73 response options was computed. These comprised 73 x (33 + 1) = 2,482 standard error estimates. Estimated design effects were computed as the ratio of the variance (square of the standard error) to the variance under simple random sampling. The design effect was undefined for 18 (out of 2,482) response options which had zero frequency in the sample because the variances in both the numerator and the denominator of the design effect were zero.

4. Parameters were estimated for regression equations differing in complexity which expressed $SE(p_d)$ as a function of the item-response proportion, p_d, and the sample size for the base of the proportion, n_d.

5. The alternative regression models were compared in order to evaluate statistical and conceptual differences.

6. Generalized values of $SE(\hat{p}_d)$ were computed using the most reasonable regression model for the values of p_d and n_d in the generalized table.

Details of steps 1-6 are described below.

An RTI computer program (STDER) was used to estimate the 73 percentages and their sampling errors for the total population and the 33 subpopulations. Since the sample size for each domain was not fixed, it was necessary to compute the estimated percentages $\hat{p}_d$ as the ratios of two random variables in which each numerator estimated the total number of students in domain d who would have chosen the particular response item and each denominator estimated the total number of students in the domain. The numerator and the denominator for each $\hat{p}_d$ were estimated using the Horvitz-Thompson estimator,[1] in which the response or the domain classification for each student is weighted inversely by his or her probability of being included in the sample.

$$\hat{p}_d = \frac{100 \sum_{h}^{L} \sum_{i}^{a_h} \sum^{b_{hi}} W_{hij} D_{hij} Y_{hij}}{\sum_{h} \sum_{i} \sum_{j} W_{hij} D_{hij}} = \frac{100\ \hat{Y}(d)}{D}$$

where L = number of final strata,

a_h = number of sample schools in final stratum-h,

b_{hi} = number of sample students from school-hi

W_{hij} = first follow-up weights adjusted for nonresponse of student-j of the school-1 of stratum-h,

$$D_{hij} = \begin{cases} 1 & \text{if student-hij belonged to domain-d, or} \\ 0 & \text{otherwise,} \end{cases}$$

$$Y_{hij} = \begin{cases} 1 & \text{if student-hij answered the questionnaire item in a specified manner (e.g., yes) or} \\ 0 & \text{otherwise,} \end{cases}$$

$Y(d)$ = estimated number of students who answered the questionnaire in a specified manner for a particular domain, and

D = estimated number of students in a particular domain.

The standard errors of the estimated percentages were calculated as

$$SE(\hat{p}_d) = \sqrt{var(\hat{p}_d)}$$

where the variance of the estimated domain percentage, p_d, was computed from the NLS first follow-up data using the formula:

$$var(\hat{p}_d) = (100)^2 \left\{ \sum_{h=1}^{M} a_h \sum_{i=1}^{a_h} \frac{\left(\hat{Y}_{hi+}(d) - \hat{Y}_{h.+}(d)\right)^2}{a_h - 1} \right.$$

$$+ \sum_{h=M+1}^{L} \left(\frac{A_h - a_h}{A_h}\right) a_h \sum_{i=1}^{a_h} \frac{\left(\hat{Y}_{hi+}(d) - \hat{Y}_{h.+}(d)\right)^2}{a_h - 1}$$

$$\left. + \sum_{h=M+1}^{L} \frac{a_h}{A_h} \sum_{i=1}^{a_h} \left(\frac{B_{hi} - b_{hi}}{B_{hi}}\right) b_{hi} \sum_{j=1}^{b_{hi}} \frac{\left(\hat{Y}_{hij}(d) - \hat{Y}_{hi.}(d)\right)^2}{b_{hi} - 1} \right\}$$

where

M = total number of final strata with schools selected with probabilities proportional to size.

$$\hat{Y}_{hi+}(d) = \sum_{j=1}^{b_{hi}} \hat{Y}_{hij}(d),$$

$$\hat{Y}_{h.+}(d) = \sum_{i=1}^{a_h} \frac{\hat{Y}_{hi+}(d)}{a_h},$$

A_h = total number of schools in sampling frame for final stratum-h,

B_{hi} = total number of senior students enrolled in school-hi,

$$\hat{Y}_{hij}(d) = \frac{\hat{Y}_{hij} - \hat{p}_d W_{hij} D_{hij}}{D},$$

$$\hat{Y}_{hi.}(d) = \frac{\hat{Y}_{hi+}(d)}{b_{hi}}, \text{ and}$$

$$D = \sum_{h=1}^{L} \sum_{i=1}^{a_h} \sum_{j=1}^{b_{hi}} W_{hij} D_{hij}.$$

The equation for $var(\hat{p}_d)$ assumes that the final strata have been reordered so that the first M are those in which schools were selected with unequal probabilities proportional to size (no loss of generality). The first term in the

equation involves the ultimate cluster estimate of variance for the strata with these selections. The second term involves the ultimate cluster estimate using the first-stage finite population correction factor for the strata where schools were selected with equal probabilities, and the third term adds back the appropriate portion of the within-school variance. This equation gives an unbiased estimate of the variance from the (L-M) final strata (schools selected with equal probabilities) and a slight overestimate of the variance from the M strata. Also, it should be noted that $\hat{Y}(d)$ is a Taylorized deviation of the ratio estimate $\hat{p}_d$. Such approximations are valid only for large samples.[2]

C. Generalized Standard Errors of Estimated Percentages

The development of a generalized table of standard errors requires as a basis some theoretical model. The effect of a sampling design on the standard error of an estimate, designated as the "design effect" or DEFF,[3] is expressed as the ratio of the observed sampling variance to the estimate of variance under simple random sampling (i.e., pq/n). It is useful to consider incorporating the design effect concept into a model to be used to compute a generalized table of standard errors. Of course, it is possible that design effects may vary from domain to domain or from question to question and the model should reflect this. Thus, the most general model for either the standard error or the design effect can be written as log-linear functions:

$$\ell n(S_{ijk}) = \beta_0 + \beta_1 \ell n(p_{ijk}) + \beta_2 \ell n(1-p_{ijk}) - \beta_3 \ell n(N_{ij}) + a_j + d_i, \qquad (7\text{-}1)$$

or

$$\ell n(\ell_{ijk}) = \beta_0 + \gamma_1 \ell n(p_{ijk}) + \gamma_2 \ell n(1-p_{ijk-} - \gamma_3 \ell n(N_{ij}) + a_j + d_i, \qquad (7\text{-}2)$$

where

S_{ijk} = the standard error of the estimated proportion p_{ijk},

P_{ijk} = the proportion of the individuals giving the k^{th} response to j^{th} question in the i^{th} domain.

ℓ_{ijk} = the square root of the design effect corresponding to the statistic p_{ijk}.

N_{ij} = number of respondents to j^{th} question who also belong to the i^{th} domain.

a_j = an effect due to the j^{th} question, and

d_i = an effect due to the i^{th} domain.

It can be shown (by putting $\beta_i = \gamma_i + 0.5$; i = 1,2,3) that the models (7-1) and (7-2) are identical. Many other models can be written as special cases of the general model above; for example, if $\gamma_1 = \gamma_2 = 0 = a_j$, the model (7-2) reduces to the case where the design effect is a function of domain and sample size only.

Since the objective here is to derive a mathematical model to provide a generalized table of standard error, consideration has been restricted to the model (7-1) and its special cases. For the purpose of comparing various models, a criterion for assessing the goodness of fit of each model was used. This criterion was the ratio of the sum of squares due to regression (the regression sum of squares defined as equal to the total sum of squares minus the error of sum of squares) to the total sum of squares. The computed values of this criterion, for various assumptions about the parameters of the model is presented in Table 7-1.

Since the S_{ijk}'s are not independent observations, the classical F-tests are not valid for testing hypotheses about the model parameters. However, the computed values of the criterion should provide a suitable "relative" measure of the validity of various hypotheses. The following four hypotheses were considered:

a) $\beta_3 = 0.5$

b) $d_i = 0$ $\quad i = 1,2,\ldots,34$

c) $a_j = 0$ $\quad j = 1,2,\ldots,16$

d) $\beta_1 = \beta_2 = 0.5$.

From à priori rational considerations, it is reasonable to assume that the hypothesis (d) $\beta_1 = \beta_2 = 0.5$ is true; but the other hypotheses need to be evaluated, since the domains (b) and the questions (c) are all likely to influence standard errors, and the influence of sample size (a) may be different than that represented by $\beta_3 = 0.5$.

From Table 7-1, the criterion for any of the three hypotheses (a), (b), and (c) individually as well as all three jointly, is greater than that for the hypothesis (d). Thus, it can be concluded that the data provides greater support to the hypotheses (a), (b), and (c) than to the hypothesis (d). Hence, the à priori acceptance of hypothesis, (d), in conjunction with the values for the criterion in Table 7-1, implies the acceptance of (a), (b), and (c). The simultaneous acceptance of all four hypotheses [hypothesis (e) in Table 7-1] results in a model with only one parameter, namely the geometric mean of all design effects.

Table 7-1. Comparison of Various Assumptions for the Prediction Model 7-1

Description	Assumptions: Parameter Constraints	Error Sum of Squares	Goodness of Fit Criterion
All parameters	None	3.214	.99228
(a) No influence of sample size except $(1/\sqrt{n})$	$\beta_3 = 0.5$	3.225	.99225
(b) Domain effect zero	$d_i = 0$	3.460	.99168
(c) Question effect zero	$a_j = 0$	3.531	.99152
(a), (b) and (c) jointly	$\beta_3 = 0.5$, $d_i = 0$, $a_j = 0$	3.964	.99048
(d) No influence of p,q except $\sqrt{(pq)}$	$\beta_1 = \beta_2 = 0.5$	4.281	.98972
(e) Only the geometric mean* of the design effects. [(a), (b), (c) and (d) jointly]	$\beta_1 = \beta_2 = \beta_3 = 0.5$, $d_i = 0$, $a_j = 0$	5.230	.98745
Only the geometric mean* of standard errors [Total corrected sum of squares for model (7-1)]	All parameters except β_0 are zero	416.297	

*The geometric mean is the arithmetic mean on the logarithmic scale.

Furthermore, empirical support for the hypotheses (b) and (c) is provided by comparisons of the mean, highest and lowest design effects for various subgroups defined by these hypotheses. The results are presented in Tables 7-2 and 7-3 and graphically in figures 7-1 and 7-2 respectively. Also, hypothesis (a) is the most acceptable (highest value of the criterion among all four) of the hypotheses. From these results, it was concluded that it is not possible to separate domains or questions into subgroups that have different design effects and that the effect of sample size is adequately summarized by the factor $1/\sqrt{n}$. It was assumed à priori that the effect of pq is adequately represented by $\sqrt{pq}$. Thus, the analysis discussed above leads to the average design effect as the most preferred model for computing generalized standard errors.

Generalized standard errors were calculated by simply multiplying the estimated standard error for a simple random sample (i.e., $\sqrt{pq/n}$) by the square root of the observed mean design effect ($\overline{DEFF} = 1.39$) for the 2,482 estimates. The standard errors generated by this method appear in Table 7-4 for varying values of p and n.

D. Standard Errors for Means

Standard errors and corresponding design effects were evaluated for 19 domains and only for the following five scales:*

1) self esteem
2) locus of control
3) life goal: work
4) life goal: community
5) life goal: family

For each of the above scale Base-Year, First Year, and change from Base-Year to First Year were considered. The results are presented in Tables 7-5 and 7-6. Since the number of variables were small, it is hazardous to derive any generalized variance.

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*For details, see National Longitudinal Study of the High School Class of 1972: Group Profiles on Self Esteem, Locus of Control and Life Goals, as listed in Appendix A.

Table 7-2. Design Effects by Domain for the Proportions

			DOMAIN SAMPLE SIZE	MEAN*	HIGHEST*	LOWEST*
1		Total	19759	1.54250	2.30002	0.94037
2	Sex	Male	9603	1.47034	2.12865	0.88067
3		Female	10120	1.48069	2.03495	0.95109
4	HS Program	General	6460	1.40459	1.88000	0.85720
5		Academic	7573	1.40026	1.47267	0.94269
6		Voc/Tech	4364	1.29.05	1.93721	0.59404
7	Race	White	14201	1.48784	2.17875	0.83056
8		Black	2528	1.45410	2.15854	0.80542
9		Other	1679	1.44905	3.42872	0.58545
10	Region	East	4189	1.57010	2.82940	0.79265
11		N Central	5074	1.37095	2.11412	0.88001
12		South	7660	1.54169	2.46063	0.49284
13		West	3436	1.50728	2.51900	0.25765
14	Aptitude	Low	3924	1.27569	1.60341	0.70079
15		Medium	6179	1.31092	1.75401	1.00189
16		High	3746	1.23417	1.59471	0.72617
17	SES	Low	5968	1.36040	1.60209	0.48074
18		Medium	9073	1.38282	1.81328	0.92200
19		High	4536	1.32151	1.84306	0.23956
20	Sex by Race	White Males	7022	1.42404	2.07502	0.86550
21		Black Males	1052	1.35422	2.41141	0.62724
22		Other Males	848	1.34016	2.20528	0.91460
23		White Females	7162	1.43651	1.95315	0.83070
24		Black Females	1472	1.42528	2.31585	0.55250
25		Other Females	829	1.42896	2.87787	0.46721
26	Race by SES	White Low	3114	1.28414	1.65894	0.44262
27		White Medium	7183	1.36284	1.85468	0.87979
28		White High	3832	1.24992	1.68976	0.235164
29		Black Low	1630	1.40756	2.09534	0.580995
30		Black Medium	731	1.37059	2.11469	0.823616
31		Black High	144	1.30600	2.23151	0.483091
32		Other Low	639	1.45510	2.23722	0.929421
33		Other Medium	655	1.30219	3.00889	0.550057
34		Other High	170	1.25254	2.04023	0.439744

*The average, the highest, and the lowest observed values of the design effects for 73 possible responses to the selected 16 questions.

Table 7-3. Design Effects by Question for the Proportions

	QUESTION	MEAN*	HIGHEST*	LOWEST*
Q2	Completed high school?	1.21054	1.55878	0.43974
Q4	Who lived with Oct. 73?	1.48451	2.34220	0.93235
Q6b	How far from senior HS?	1.53458	2.55304	0.60535
Q7a	Marital status Oct. 73?	1.34536	2.05318	0.62724
Q12	Educational aspirations?	1.56299	2.51960	1.04366
Q13a	Willing to borrow for education?	1.35143	2.30255	0.85067
Q14	Educational expectations?	1.58332	2.32858	0.85396
Q15a	Positive attitude toward self?	1.26066	1.79885	1.02755
Q15f	Planning makes you unhappy?	1.36818	1.74032	1.04314
Q16f	Expect to be doing "other: in Oct. 74?	1.29255	1.66982	0.89450
Q20a	Success in work important?	1.32143	2.04623	0.82852
Q20b	Close to home important?	1.40251	2.62915	0.85409
Q48a	Did you hold a job in Oct. 73?	1.30077	1.59985	0.97561
Q64	Armed Forces since HS?	1.40111	3.00889	0.93476
	Oct. 72 activity state	1.44241	3.42872	0.46721
	Oct. 73 activity state	1.31212	2.82940	0.23516

*The average, the highest and the lowest values of the design effects for 34 domains selected domains.

Figure 7-1. Graph of Design Effects by Domain for the Proportions

(See Table 7-2 for Data)

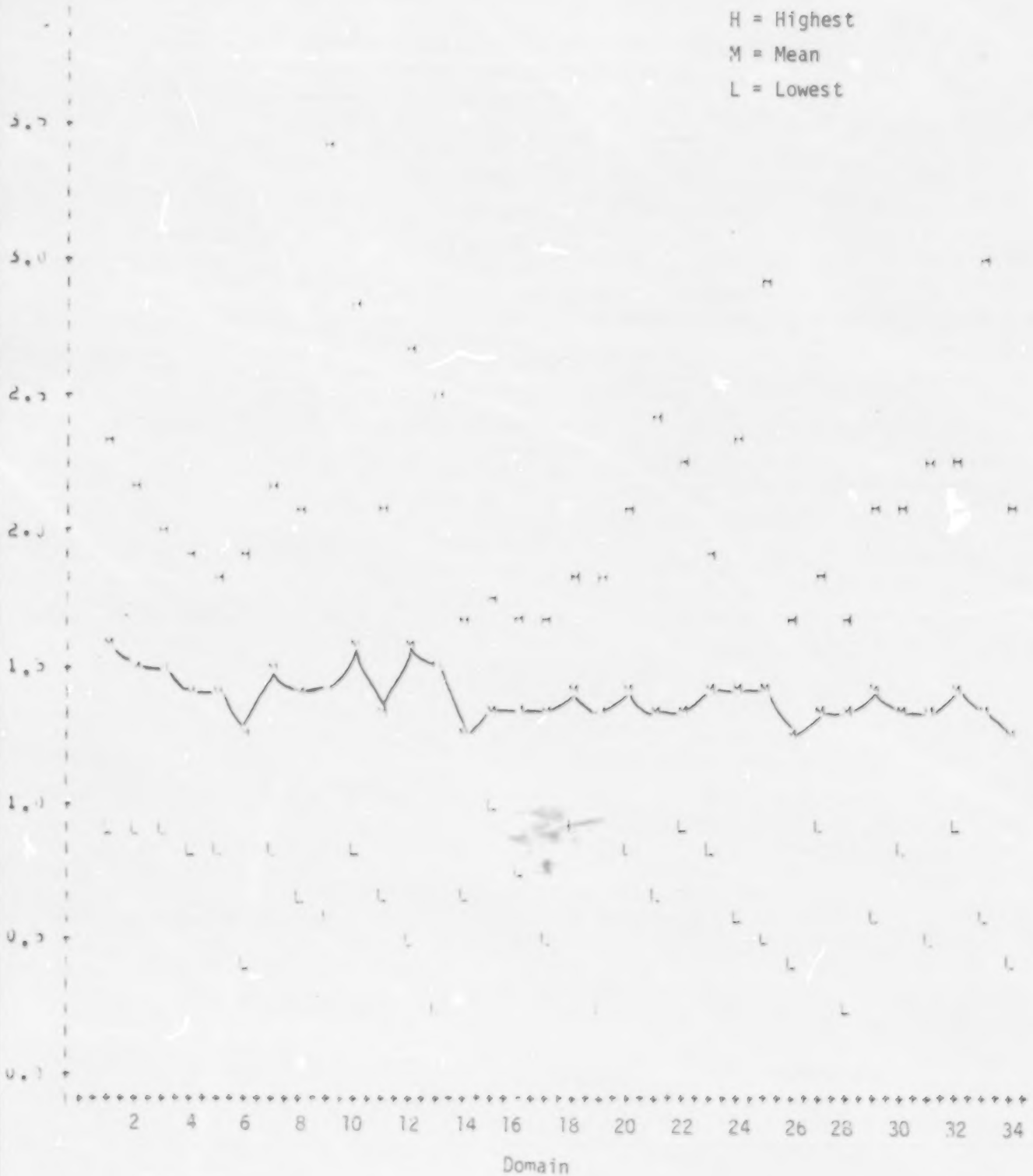

Figure 7-2. Graph of Design Effects by Questions for the Proportions

(See Table 7-3 for Data)

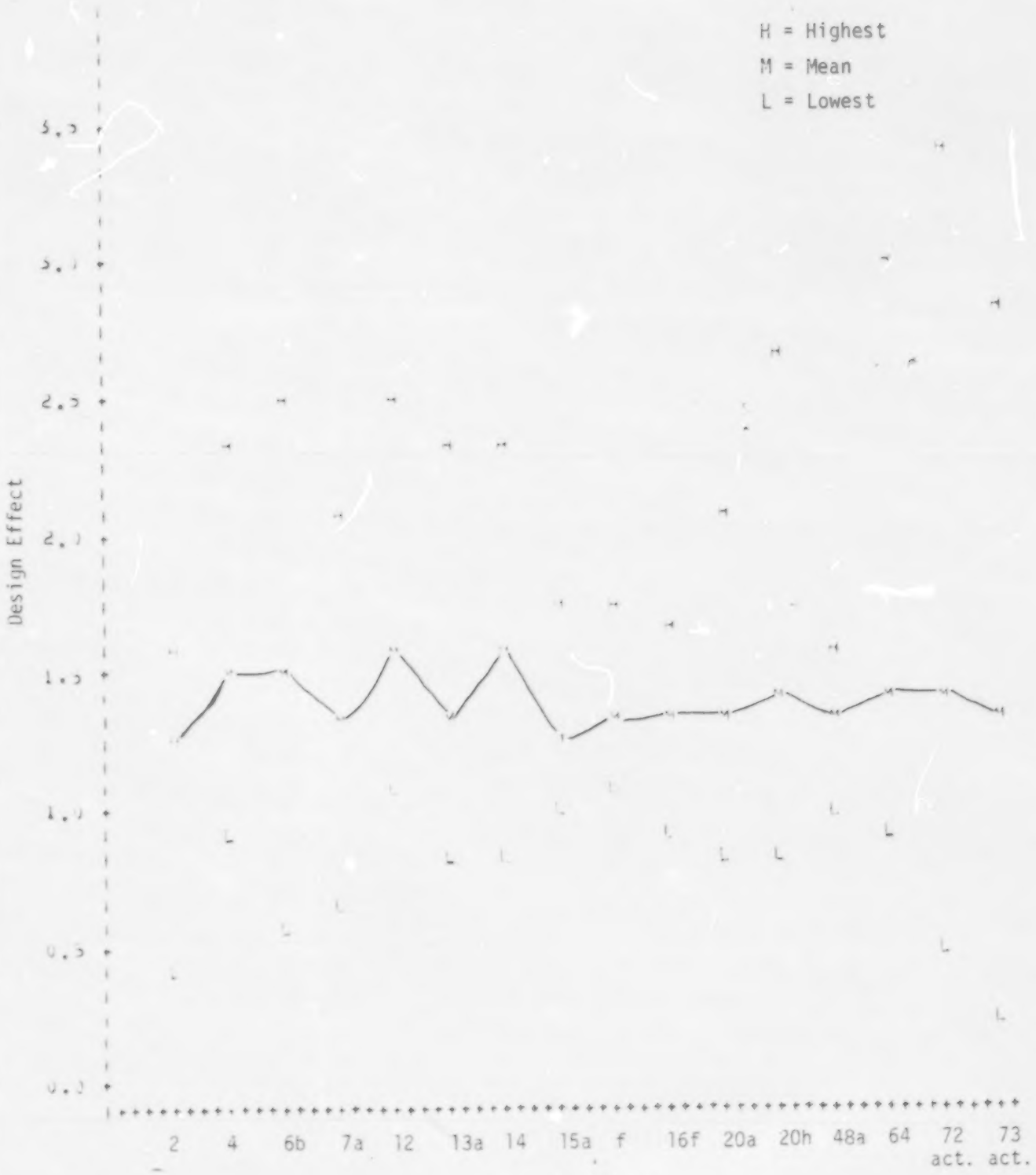

Table 7-4. Generalized Standard Errors of Estimated Percentages

Sample Size for Base of Percentage	Estimated Percentage										
	1 or 99	5 or 95	10 or 90	15 or 85	20 or 80	25 or 75	30 or 70	35 or 65	40 or 60	45 or 55	50
100	1.17	2.57	3.54	4.22	4.72	5.11	5.41	5.63	5.78	5.87	5.90
250	0.74	1.63	2.24	2.67	2.99	3.23	3.42	3.56	3.66	3.71	3.73
500	0.53	1.15	1.58	1.89	2.11	2.29	2.42	2.52	2.59	2.63	2.64
750	0.43	0.94	1.29	1.54	1.72	1.87	1.98	2.06	2.11	2.14	2.16
1,000	0.37	0.81	1.12	1.33	1.49	1.62	1.71	1.78	1.83	1.86	1.87
1,500	0.30	0.66	0.91	1.09	1.22	1.32	1.40	1.45	1.49	1.52	1.52
2,000	0.26	0.58	0.79	0.94	1.06	1.14	1.21	1.26	1.29	1.31	1.32
2,500	0.23	0.51	0.71	0.84	0.94	1.02	1.08	1.13	1.16	1.17	1.18
3,000	0.21	0.47	0.65	0.77	0.86	0.93	0.99	1.03	1.06	1.07	1.08
4,000	0.19	0.41	0.56	0.67	0.75	0.81	0.86	0.89	0.91	0.93	0.93
5,000	0.17	0.36	0.50	0.60	0.67	0.72	0.77	0.80	0.82	0.83	0.83
6,000	0.15	0.33	0.46	0.54	0.61	0.66	0.70	0.73	0.75	0.76	0.76
8,000	0.13	0.29	0.40	0.47	0.53	0.57	0.60	0.63	0.65	0.66	0.66
10,000	0.12	0.26	0.35	0.42	0.47	0.51	0.54	0.56	0.58	0.59	0.59
12,000	0.11	0.23	0.32	0.38	0.43	0.47	0.49	0.51	0.53	0.54	0.54
16,000	0.09	0.20	0.28	0.33	0.37	0.40	0.43	0.44	0.46	0.46	0.47
20,000	0.08	0.18	0.25	0.30	0.33	0.36	0.38	0.40	0.41	0.42	0.42

Table 7-5. Standard Errors for the Mean Score

			B-Y					FFU					Change				
			Self Esteem	Locus of Control	Work	Community	Family	Self Esteem	Locus of Control	Work	Community	Family	Self Esteem	Locus of Control	Work	Community	Family
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1		Total	.0061	.0072	.0040	.0048	.0042	.0044	.0054	.0035	.0038	.0033	.0063	.0074	.0039	.0041	.0043
2	Sex	Male	.0085	.0099	.0050	.0064	.0062	.0060	.0075	.0042	.0055	.0050	.0088	.0101	.0049	.0061	.0062
3		Female	.0089	.0099	.0050	.0060	.0056	.0062	.0078	.0050	.0049	.0044	.0091	.0098	.0058	.0057	.0060
4	HS Program	General	.0175	.0234	.0072	.0113	.0128	.0128	.0194	.0079	.0103	.0111	.0186	.0224	.0092	.0124	.0140
5		Academic	.0068	.0077	.0044	.0051	.0046	.0050	.0060	.0040	.0042	.0040	.0069	.0080	.0045	.0047	.0045
6		Voc/Tech	.0258	.0348	.0129	.0228	.0186	.0289	.0246	.0131	.0207	.0168	.0317	.0359	.0152	.0208	.0255
7	Race	Black	.0115	.0124	.0062	.0079	.0069	.0078	.0107	.0061	.0068	.0064	.0122	.0134	.0072	.0078	.0072
8		White	.0082	.0100	.0053	.0065	.0058	.0065	.0075	.0050	.0055	.0047	.0087	.0105	.0054	.0060	.0062
9		Other	.0128	.0112	.0084	.0094	.0091	.0092	.0097	.0063	.0073	.0070	.0135	.0132	.0078	.0082	.0086
10	Region	N East	.0113	.0133	.0065	.0084	.0079	.0101	.0126	.0069	.0082	.0074	.0128	.0156	.0076	.0086	.0094
11		N Central	.0092	.0096	.0053	.0068	.0063	.0078	.0091	.0054	.0063	.0061	.0098	.0096	.0058	.0064	.0065
12		South	.0116	.0111	.0080	.0083	.0076	.0093	.0109	.0077	.0077	.0070	.0118	.0125	.0077	.0078	.0076
13		West	.0137	.0156	.0087	.0094	.0088	.0098	.0118	.0079	.0079	.0063	.0132	.0148	.0078	.0080	.0086
14	Aptitude	Low	.0110	.0132	.0078	.0084	.0082	.0079	.0101	.0073	.0067	.0066	.0118	.0147	.0085	.0078	.0086
15		Medium	.0109	.0128	.0059	.0086	.0068	.0074	.0093	.0052	.0070	.0052	.0111	.0128	.0061	.0072	.0071
16		High	.0123	.0163	.0093	.0124	.0094	.0110	.0124	.0070	.0098	.0094	.0142	.0170	.0083	.0111	.0100
17	SES	Low	.0109	.0123	.0063	.0078	.0069	.0076	.0093	.0055	.0065	.0059	.0112	.0135	.0070	.0073	.0074
18		Medium	.0090	.0093	.0062	.0072	.0063	.0070	.0077	.0051	.0059	.0051	.0090	.0100	.0055	.0064	.0066
19		High	.0119	.0143	.0065	.0084	.0081	.0098	.0117	.0073	.0068	.0064	.0127	.0148	.0081	.0081	.0084

Table 7-6. Design Effects for the Mean Score

			B-Y					FFU					Change				
			Self Esteem	Locus of Control	Work	Community	Family	Self Esteem	Locus of Control	Work	Community	Family	Self Esteem	Locus of Control	Work	Community	Family
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Total		1.37	1.56	1.83	1.77	1.48	1.29	1.33	1.64	1.48	1.43	1.34	1.51	1.39	1.23	1.26
2	Sex	Male	1.43	1.44	1.46	1.45	1.53	1.24	1.25	1.35	1.40	1.56	1.31	1.30	1.15	1.21	1.23
3		Female	1.38	1.53	1.51	1.49	1.39	1.23	1.42	1.64	1.32	1.31	1.39	1.43	1.43	1.25	1.31
4	HS Program	General	0.93	1.07	0.73	0.97	1.08	0.95	1.17	1.04	1.13	1.29	0.86	0.90	0.74	0.89	0.92
5		Academic	1.44	1.62	1.87	1.71	1.48	1.30	1.40	1.61	1.48	1.59	1.34	1.52	1.46	1.29	1.21
6		Voc/Tech	0.86	0.95	0.83	1.44	0.99	1.68	0.78	0.93	1.44	1.08	0.96	1.02	0.77	1.00	1.17
7	Race	Black	1.20	1.04	1.29	1.32	1.08	1.04	1.18	1.35	1.27	1.38	1.17	1.09	1.17	1.13	0.85
8		White	1.28	1.55	1.65	1.61	1.43	1.46	1.35	1.66	1.52	1.41	1.31	1.55	1.35	1.29	1.32
9		Other	1.50	1.18	1.68	1.58	1.62	1.19	1.24	1.25	1.24	1.48	1.56	1.33	1.32	1.15	1.32
10	Region	N East	1.16	1.16	1.39	1.38	1.22	1.23	1.10	1.29	1.28	1.16	1.21	1.21	1.20	1.18	1.16
11		N Central	1.38	1.45	1.59	1.61	1.44	1.30	1.47	1.35	1.40	1.62	1.41	1.17	1.37	1.26	1.35
12		South	1.38	1.53	1.73	1.40	1.41	1.16	1.51	1.50	1.24	1.39	1.44	1.55	1.45	1.31	1.32
13		West	1.73	1.96	2.18	1.85	1.63	1.61	1.80	2.19	1.77	1.32	1.51	1.60	1.32	1.24	1.33
14	Aptitude	Low	1.31	1.65	2.06	1.70	1.71	1.18	1.40	1.97	1.35	1.57	1.43	1.79	1.91	1.31	1.49
15		Medium	1.25	1.16	1.28	1.49	1.04	1.06	0.98	1.16	1.39	1.01	1.09	1.11	1.03	0.97	0.92
16		High	1.04	1.48	1.59	2.07	1.39	1.37	1.20	1.07	1.64	2.01	1.20	1.50	1.06	1.46	1.24
17	SES	Low	1.36	1.44	1.41	1.51	1.25	1.31	1.27	1.32	1.40	1.46	1.28	1.47	1.30	1.17	1.12
18		Medium	1.36	1.43	1.92	1.66	1.56	1.32	1.38	1.55	1.48	1.48	1.31	1.42	1.30	1.32	1.48
19		High	1.29	1.34	1.31	1.37	1.25	1.56	1.29	1.69	1.17	1.26	1.20	1.25	1.35	1.16	1.08

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Chapter VIII

COMPOSITE VARIABLES FOR STUDYING STUDENT PARTICIPANTS

A. Introduction

Several composite scores were derived for descriptive and analytical studies. The composites include general academic ability, socioeconomic status (SES), and measures of psychological attributes. These were derived for three reasons:

1. Variables such as ability and SES have been shown by researchers to be related to academic and nonacademic outcomes such as college enrollment and occupational attainment; thus they help define relevant subpopulations for descriptive studies, and they are the independent variables in some analytical studies. Variables measuring goals, attitudes, and so forth are useful as endogenous variables in modeling educational-occupational behavior.
2. A score derived from several items measuring several aspects is, in most cases, a more accurate measure than the score from a single item. Thus a good SES index should reflect many SES characteristics, and psychological scales should reflect conceptually appealing attributes.
3. The rules of parsimony and data manageability require reductions of data dimensions consistent with analytical needs.

Procedures and results of the NLS data analyses and the development of composites are presented in the following sections on ability index, SES index, and psychological scales. Also in this chapter the derivations of activity state and planning state variables are described. These variables are useful in answering questions such as:

What were young people's plans shortly before graduation from high school?
What were they doing shortly after graduation?
How many of them fulfilled their plans?
What were they doing one and one-half years after graduation?
How many changed from one activity to another?

Answers to these questions depend on defining the planning and the activity states for NLS respondents.

B. Ability Index

The six tests for measuring verbal and nonverbal abilities in the Base-Year Test Book were vocabulary, picture number, reading, letter groups, mathematics, and mosaic comparisons (see Chapter I for more details). Although a number of ability composites for different purposes could have been derived by factor analysis of test scores, the greatest need was for a linear combination of tests that would reflect general academic aptitude or ability.

Analyses of principal components with a varimax rotation of the six tests suggested that a weighted linear combination of four tests--vocabularly, reading,

Table 8-1. Weights Assigned to the Components and Factors

Ability Test	Weights	
	First principal component	First varimax factor
Vocabulary	0.75	0.87
Picture number	0.62	0.23
Reading	0.83	0.86
Letter groups	0.82	0.59
Mathematics	0.84	0.80
Mosaic comparison	0.60	0.13

letter groups, and mathematics--would yield an adequate overall academic score (Table 8-1). The first principal component accounted for 56 percent of the total variance (there was only one latent root > 1). The first varimax factor gave essentially equal weights to the four tests. For subsidiary analyses, it may be desirable to develop other composites, but for the major analyses an equally weighted linear combination of these four was deemed a sufficient general ability index. With standard scores with a mean score of 50 and a standard deviation of 10, such a sum should have a mean of approximately 200. Because the adjusted Base-Year Student Questionnaire weights (instead of the Test Book weights) were applied to the computations, the observed mean was 203.64, and the standard deviation was 32.74.

To develop subpopulations for descriptive statistics, the composite ability distribution was classified as high, middle, or low. The high corresponded to the upper quartile, the low to the lower quartile, and the middle to the two middle quartiles. To find the cutting points for the groups, it was assumed that ability scores were distributed normally. According to the unit normal distribution, the proportion of scores having a z-score > 0.675 was approximately 25 percent; likewise the proportion with < -0.675 was about 25 percent. By translating these cutting points to the mean and standard deviation of the ability composite, any composite score > 225.74 would be in the upper quartile, any score < 181.54 would be in the lower quartile, and the remaining scores would be in the middle two quartiles.

C. SES Index

SES has been a critical independent variable in many longitudinal studies. In the One-Year Follow-Up Studies dealing with the effects of SES on postsecondary education, Project Talent used a nine-item linear composite of father's

education, mother's education, father's occupation, family income, and values of house and household items.[1] The nine items selected from 25 status-related variables because they were highly correlated with Project Talent's ability tests were subsequently grouped into quartiles. Therefore, the SES index was developed on conceptual as well as empirical bases.

The Coleman Report dealt with a large cluster of "family background" variables for analyzing student achievements.[2] In addition to SES indicators, they included measures of urbanism, migration status, family size, and the interests of parents in their child's education, so the cluster aggregated measures of the home and community which conceptually do not belong in a family status index.

Since 1966, there has been unprecedented growth in sociology, both methodologically and conceptually, regarding the effects of SES on occupational attainments. This growth essentially began with Blau and Duncan's American Occupational Structure,[3] which has been followed by studies of Sewell and Hauser,[4] and is currently being continued in analyses by Alexander and Eckland.[5]

Education, occupation, and income have been used traditionally in SES composites. They were included in the NLS base-year study (1972): ETS attempted to develop an SES index with comparable weightings across racial groups and a financial capability index which would be orthogonal to the SES index. However, to presume that educational attainment has the same effects on occupational status or income for blacks and whites is to postulate that economic discrimination does not (or did not) exist against blacks; it generally lowers correlations among these variables for blacks. The ETS report seems to bear this out. In spite of differences among racial groups, a common SES composite is useful for analyses. Among the status-related variables in the ETS factor analysis of the Base-Year Student Questionnaire were dependent variables or correlates rather than variables that defined SES. These are "friends" and "college plans" (peer influences, not family status variables); "career preference", "educational preference", and "educational plans" (dependent variables, not SES-background definitions); a "brother/sister education" (an outcome or a significant other variable); and "father's educational wishes" and "mother's educational wishes" (influences, not SES variables). Including these variables in a composite SES index is analogous to including measures of high school curriculum, college plans, and IQ's in a composite of academic aptitudes.

The SES index for the present studies was derived from an equally weighted linear composite of father's education, mother's education, family income,

father's occupation, and household values from the First Follow-Up (FFU) and/or base-year Student (B-Y) Questionnaires. The derivations (Figure 8-1) are explicated below.

Father's and mother's education. FFU Q.78 and B-Y Q.90 were rescaled as indicated below. Rescaling made the two sets of data from the two questions compatible. The response to Q.78 was checked first; if it was not answered, the Q.90 response was used.

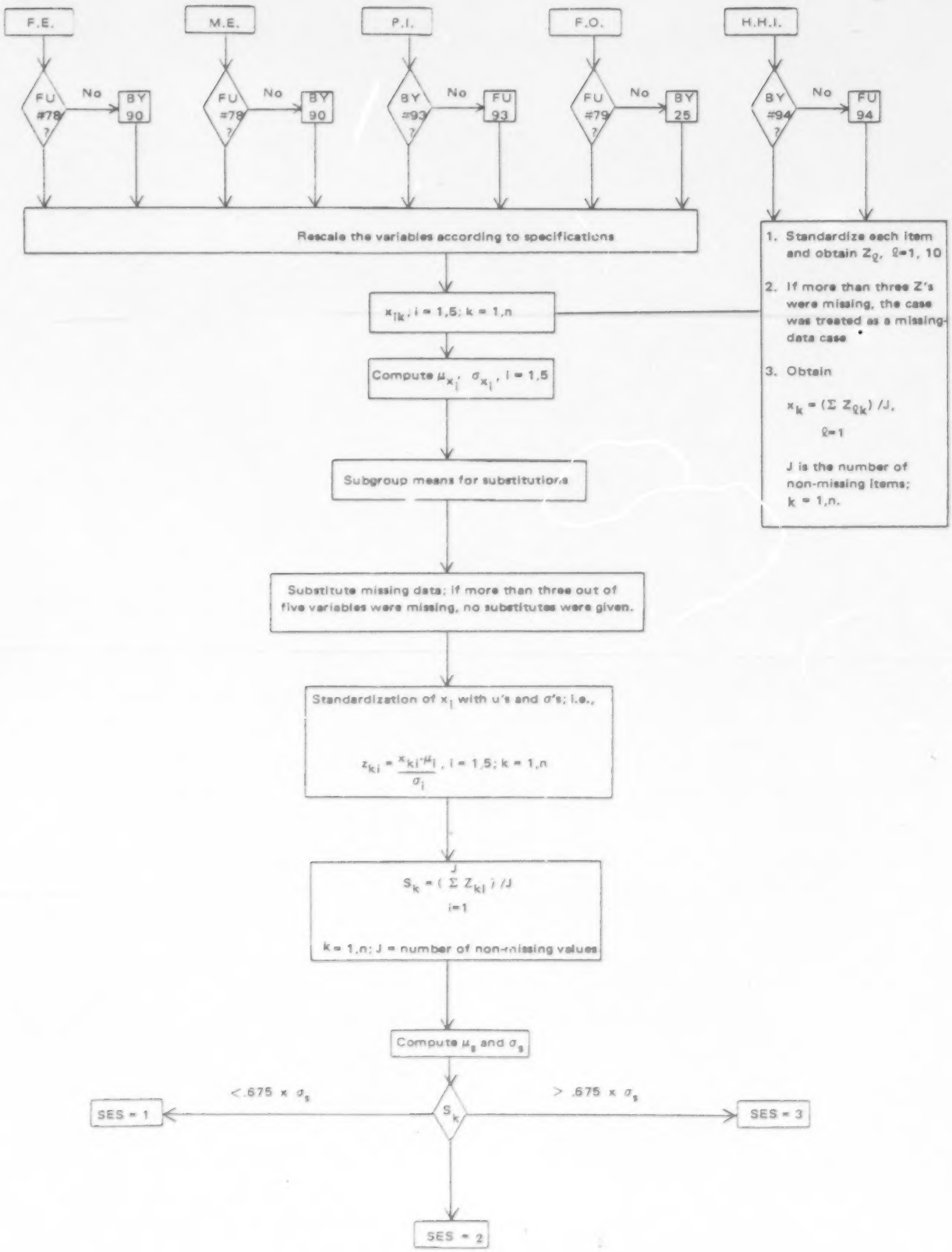
FFU Q.78. What is the highest educational level completed by your mother and father? If you are not sure, please give your best guess.

	Father or Male Guardian	Mother or Female Guardian	The New Scale
No schooling or grade school only	1	1	1
Attended high school, did not finish	2	2	
Attended high school, did finish	3	3	2
Attended college or vocational, business, or trade school < 2 years	4	4	
Attended college or vocational, business, or trade school ≥ years	5	5	3
Some college (includes 2-year degree)	6	6	
Finished college (4- or 5-year degree)	7	7	4
Earned Master's degree or equivalent	8	8	5
Earned Ph.D., M.D., or equivalent	9	9	

B-Y Q.90. What was the highest educational level each person completed? If you are not sure, please give your best guess.

	Father or Male Guardian	Mother or Female Guardian	Oldest Brother or Sister	The New Scale
Doesn't apply	1	1	1	blank
Did not complete secondary school	2	2	2	1
Finished high school or equivalent	3	3	3	2
Adult education program	4	4	4	blank
Business or trade school	5	5	5	3
Some college	6	6	6	
Finished college (4 years)	7	7	7	4
Graduate or professional school (e.g., law or medical school), no degree	8	8	8	5
Graduate or professional degree (e.g., M.S., Ph.D., or M.D.)	9	9	9	

Figure 8-1. SES Derivation Flow Chart


F.E.
M.E.
P.I.
F.O.
H.H.I.
FU #78 ?
No
BY 90
FU #78 ?
No
BY 90
BY #93 ?
No
FU 93
FU #79 ?
No
BY 25
BY #94 ?
No
FU 94
Rescale the variables according to specifications
1. Standardize each item and obtain Z_ℓ, ℓ=1, 10
2. If more than three Z's were missing, the case was treated as a missing-data case
3. Obtain
$x_k = (\Sigma Z_{\ell k}) / J$,
ℓ=1
J is the number of non-missing items; k = 1,n.
x_{ik}; i = 1,5; k = 1,n
Compute μ_{x_i}, σ_{x_i}, i = 1,5
Subgroup means for substitutions
Substitute missing data; if more than three out of five variables were missing, no substitutes were given.
Standardization of x_i with u's and σ's; i.e.,
$z_{ki} = \frac{x_{ki} - \mu_i}{\sigma_i}$, i = 1,5; k = 1,n
$S_k = (\sum_{i=1}^{J} Z_{ki}) / J$
k = 1,n; J = number of non-missing values
Compute μ_s and σ_s
$< .675 \times \sigma_s$
S_k
$> .675 \times \sigma_s$
SES = 1
SES = 3
SES = 2

Parents' income. The rescaling yielded scores that were approximately equally spaced as shown below. The data were drawn first from B-Y Q.93; if the data were missing, the responses to FFU Q.93 were used.

B-Y Q.93. What is the approximate income before taxes of your parents (or guardian)? Include taxable and nontaxable income from all sources.

Annual Income	(Circle one)	New Scale
< $3,000 (≤ $60/week)	01	1
$3,000 - $5,999 ($60-119/week)	02	2
$6,000 - $7,499 ($120-149/week)	03	3
$7,500 - $8,999 ($150-179/week)	04	
$9,000 - $10,499 ($180-209/week)	05	4
$10,500 - $11,999 ($210-239/week)	06	
$12,000 - $13,499 ($240-299/week)	07	5
$13,500 - $14,999 ($270-299/week)	08	
$15,000 - $18,000 ($300-359/week)	09	6
> $18,000 (≥ $360/week)	10	7

Father's occupation. From FFU Q.79, occupations were mapped into Duncan SEI scores for occupational categories.[6] If data were missing, the B-Y Q.25 responses and the average SEI scores were used as shown in Table 8-2.

Table 8-2. Duncan SEI Scores for Base-Year Q.25

Occupational Category Code		Average SEI Score	Occupational Category Code		Average SEI Score
1	Clerical	56.58	8	Operative	19.18
2	Craftsman	27.41	9	Professional	70.21
3	Farmer	28.00	10	Proprietor	49.70
4	Homemaker	blank	11	Protective	38.00
5	Laborer	7.33	12	Sales	54.42
6	Manager	67.73	13	Service	15.90
7	Military	blank	14	Technical	61.40

Household items. The items from B-Y Q.94 or FFU Q.94 were used to compute a household items index. All components (i.e., items) had almost equal loading on the largest principal component (Table 8-3). The procedures were as follows: (a) standardize items 94b-k using the weighted means and standard deviations, (b) reverse the signs of standard scores so that high scores reflect possession of the household item, (c) treat those with less than 4 of the 10 possible responses as cases with missing data, (d) sum the standard scores over

Table 8-3. Principal Component Loadings for Base-Year Q.94 Items

Questionnaire Item		Weighted Mean*	Weighted Standard Deviation	Loadings on First Principal Component
94b	Newspaper	1.1030	0.3040	0.50
94c	Dictionary	1.0147	0.1203	0.42
94d	Encyclopedia	1.1050	0.3066	0.54
94e	Magazine	1.0753	0.2639	0.46
94f	Record player	1.0383	0.1919	0.42
94g	Tape recorder	1.2828	0.4504	0.44
94h	Color TV	1.3579	0.4794	0.48
94i	Typewriter	1.1848	0.3881	0.53
94j	Electric dishwasher	1.6116	0.4874	0.50
94k	Two cars	1.2480	0.4319	0.47

*Where 1 means do have item; 2 means do not have.

nonmissing data, and (e) divide the sum by the number of nonmissing items. The decision to use the simple average of the standard scores was based on the results of the principal components analysis which showed essentially equal loadings. Using the average rather than the sum alleviated the problem of missing data. "Study place" (94a) was dropped from the composite because it not only had a low correlation with the first principal component but also had an ambiguous interpretation.

Population subgroups were defined by cross-classifying race, high school program, and aptitude. Means of the SES components for these subgroups were derived for each classification factor and for all two-way (e.g., race vs aptitude) and three-way classifications. In general, the number in the subgroups was large enough for stable estimates: $N \geq 300$.

The subgroup means were substituted for missing SES data. If values on more than three of the five variables for any case were missing, no SES composite was computed. The selection of a proper mean for substitution was determined by the availability of the three classification variables. If a respondent had all three, the three-way classification means were used for missing-data substitutions; if a respondent had only two, the two-way was used; for other cases, the primary was used.

Factor analysis of the five variables revealed a one-factor solution with homogeneous weights that could account for the intercorrelations of the five SES components. The five variables were standardized and summed over the nonmissing

and in some instances imputed data, the sums were divided by the number of non-missing components, and the resultant scores were classified into high, middle two, and low quartiles.

D. Psychological Scales

The ending of high school years is followed by change and transition as some students move into the work force and others into postsecondary education. Undoubtedly, many personal changes and adjustments occur. Among these are psychological adjustments. Understanding the adjustments is essential for effective planning, implementation, and evaluation of policies and programs designed to enhance educational opportunities and achievements and to upgrade occupational attainments and career outcomes. Some questions of interest include the following:

> Are demographic characteristics and socioeconomic background related to measures of self-concept, locus of control, and life goals?
>
> Do planning and activity groups differ in measures of self-concept, locus of control, and life goals?
>
> Are activity transitions related to measures or changes in measures of self-concept, locus of control, and life goals?

Questions led to derivations of five variables: self-concept, locus of control, and work-, family-, and community-related life goals. These psychological attributes were measured by scales constructed on the basis of factor analyses of sets of conceptually related items in the Base-Year Student Questionnaire, and these scales were defined in an identical manner in the First Follow-Up Questionnaire. Each item was included in only one scale to prevent artifactual correlations among the scales. Each participant had two scores for each scale: one from the base-year and one from the first follow-up. These scales are described below.

1. Self-Concept and Locus of Control

The self-concept scale consists of four items. Each has five response choices ranging from "disagree strongly" to "agree strongly" and scores ranging from 1 to 5.

> I take a positive attitude toward myself.
> I feel I am a person of worth, on an equal plane with others.
> I am able to do things as well as most other people.
> On the whole, I'm satisfied with myself.

The locus-of-control scale, composed of four items with five response choices each, also has corresponding scores ranging from 1 to 5.

> Good luck is more important than hard work for success.
> Every time I try to get ahead, something or somebody stops me.
> Planning only makes a person unhappy since plans hardly ever work out.
> People who accept life are happier than those who try to change it.

Individual base-year responses to the above eight items were subjected to factor analysis; a two-factor varimax solution summarized the response data (Table 8-4). One factor had high loadings from the four self-concept items, and the other had high loadings from the four control-of-environment items. The joint factor analysis shows that items within each scale have higher intercorrelations than items between the scales.

Table 8-4. Weighted Two-Factor Solution: Self-Concept and Locus of Control

Response Choices	Self-Concept Weights	Locus-of-Control Weights
1. Positive attitude	0.73	-0.09
2. Luck more important than work	0.08	0.60
3. Equal worth	0.72	-0.13
4. Able to do as well as most people	0.69	-0.05
5. Can't get ahead	-0.22	0.65
6. Shouldn't plan	-0.14	0.73
7. Accept condition	0.04	0.62
8. Satisfied	0.65	0.08
Σ_{ai}^2	2.02	1.75

The means of the weighted items from the Base-Year Student Questionnaire revealed that most students' responses were above the 3.0 midpoint (Table 8-5). This phenomenon indicates that most students' responses were positive for self-concept items and internal for locus-of-control items.

Table 8-5. Weighted Base-Year Responses: Self-Concept and Locus of Control

Response Choices	Weighted Mean	Weighted Standard Deviation	Number in the Sample
Self-Concept			
Positive attitude	3.89	0.96	16,480
Luck more important than work	4.16	0.92	16,476
Equal worth	4.10	0.81	16,382
Able to do as well as most people	4.04	0.81	16,388
Locus of Control			
Can't get ahead	3.65	1.03	16,431
Shouldn't plan	3.80	1.12	16,461
Accept condition	3.42	1.30	16,456
Satisfied	3.60	1.10	16,450

To construct a scale of individual scores for subsequent analyses, the item raw scores were first summed and then divided by the number of nonmissing items. Internal consistency was indicated by coefficient alphas of 0.66 for the self-concept scale and 0.56 for the locus-of-control scale.

2. Life Goals

Three scales constructed for measuring life goals were related to aspects of work, community, and family. Each scale was composed of several items. Responses for each item were "not important," somewhat important," and "very important;" these were scaled 1, 2, and 3, respectively.

Work scale
Being successful in my line of work
Having lots of money
Being above to find steady work

Community scale
Being a leader in my community
Being able to give my children better opportunities than I had
Working to correct social and economic inequalities

Family scale
Finding the right person to marry and having a happy family life
Living close to parents and relatives
Getting away from this area of the country (negative weight)

Factor analyses of the 10 goal-related items in the questionnaire produced three latent roots greater than 1 for the three-factor varimax solution (Table 8-6). The item dealing with friendship (item 4) had insufficiently high factor loadings for inclusion in any scale. The means show that the majority of students gave high ratings to items 1, 2, 4, 5, and 7 (Table 8-7).

Table 8-6. Weighted Three-Factor Solution: Life Goals

Response Choices		Work	Community	Family
1.	Success in work	0.62	0.13	0.13
2.	Marriage and family	0.23	0.15	0.55
3.	Money	0.73	0.04	-0.09
4.	Friendship	0.10	0.34	0.22
5.	Steady work	0.69	0.12	0.19
6.	Leader	0.31	0.60	0.03
7.	Give children opportunities	0.34	0.43	0.33
8.	Living close to home	0.08	0.25	0.53
9.	Getting away	0.12	0.26	-0.74
10.	Correcting inequities	-0.22	0.81	-0.09
	Σ_{ai}^2	1.7373	1.5029	1.3648

Table 8-7. Weighted Base-Year Responses: Life Goals

Response Choices	Weighted Mean	Weighted Standard Deviation	Number in the Sample
1. Success in work	2.83	0.41	16,564
2. Marriage and family	2.77	0.52	16,494
3. Money	1.96	0.63	16,498
4. Friendship	2.77	0.47	16,520
5. Steady work	2.75	0.50	16,483
6. Leader	1.66	0.68	16,474
7. Give children opportunities	2.61	0.61	16,430
8. Living close to home	1.57	0.63	16,492
9. Getting away	1.58	0.73	16,474
10. Correcting inequities	2.08	0.69	16,466

To construct an individual scale score, the appropriate raw scores were summed and divided by the number of items available. (For the family scale, the score on "getting away from this area of the country" had a negative weight). The coefficient alphas for the work, community, and family scales are 0.53, 0.44, and 0.30, respectively; the low reliability may complicate the interpretations of change scores.

To make the life-goals scales have a score range consistent with the self-concept and locus-of-control scales of 1 to 5, the scale scores in the subsequent analyses were transformed for the work and community scales by $Y = 2X - 1$ and for the family scale by $Y = 2X + 1.67$. The X is the original scaled score and Y is the transformed scale score. The standard deviations were twice the sizes of the original ones.

E. Classification Variables

Many derived variables were used in the analyses. They include classification variables for defining meaningful subpopulations for descriptive analyses and the planning and activity state variables for defining transition matrices between plans and activities and between activities at two time points.

1. Planning States, 1972

In the spring of 1972, the students were asked: "What is the one thing that most likely will take the largest share of your time in the year after you leave high school?" The responses to this question and to the requests

for the beginning dates of planned activities in later questions were used jointly to classify students into one of nine planning states;

vocational technical study,	working full time,	military service,
2-year college study,	working part time,	full-time homemaker,
4-year college study,	on-the-job training,	other (travel, take a break).

Most respondents (92 percent) planned to enter an activity state prior to January 1973. Plans are useful in describing plan fulfillment and can enter various analytical models designed to explain the flow through the educational-occupational system. There were 1,275 respondents (8 percent) who were not classified, either because of nonresponse to one or both questions needed to define a planning state or because they planned to begin an activity after December 1972.

2. Activity States, 1972 and 1973

Activity states can be defined in respect to both October 1972 and October 1973. Common to both are six basic activity states:

working,	participating in military service,
attending school,	homemaking, and
looking for work,	others (e.g., traveling, taking a break).

These six were the starting points for more detailed activity state classifications; some were defined by responses to a single item from the First Follow-Up Questionnaire and others by responses to several items. The rather complex classification procedures are briefly summarized below.

Eight variables were used to define activity states in October 1972 and 1973. Some of the eight variables were themselves defined by responses to more than one questionnaire item. The eight variables were:

study,	full-time vs part-time work,
school type,	homemaker,
full-time vs part-time study,	looking for work, and
work,	military service.

An example of an activity state variable defined by a single item is full-time versus part-time work for October 1972 which is defined as follows:

Full-time. Response of ≥ 35 hours to Q.56a.
Part-time. Response of < 35 hours to Q.56a.
Unknown or not working. No response (blank) to Q.56a.

An example of a complex multiple item definition for the activity state study status in October 1972 is:

Not study. Response of 2 (no) to Q.29a (study status in October 1972); no response to Q.29a, at least two responses of 1 to Q.29b (reasons for not continuing education), and no response to Q.30 (was school attended in October 1972 the same school attended in October 1973?), Q.33b (full-time student), and Q.33c (class hours/week); or response of 2 (no) to Q.23 (ever attended school after high school graduation?).

Study. Response of 1 to Q.29a; no response to Q.29a, no responses of 1 or no response to Q.29b, and response to Q.30, Q.33b, or Q.33c.

Unclassifiable. Other first follow-up respondents.

The complexity in classifying a respondent into an activity state is due to the complicated skip patterns and the number of items needed to define an activity state variable.

As the first follow-up data were being analyzed during the late summer and early fall of 1974, it became evident that about 3,100 respondents could not be classified into an activity state for October 1972; over 2,400 could not be classified for October 1973; and over 3,500 could not be classified with respect to either one or both Octobers. (There was considerable overlap between the missing activity state data for the two Octobers). Logical imputations that had high probabilities of being correct were used to reduce the missing activity state information to an acceptable level. These logical imputations were a temporary measure designed to reduce nonresponse bias until future data collection could reduce the amount of missing activity states.

In December 1974 NCES decided to have RTI conduct a special activity state survey to collect missing classification variables data and activity state information for both Octobers. At that time it was seen that the then-current second follow-up survey could be used to reduce substantially the costs of the special survey: a few special questions could be added to the telephone calls being made for fail-edit questionnaires, and similarly, questions could be added when field interviewers began contacting mail nonrespondents in early January 1975.

The 3,904 respondents to be recontacted were determined from analysis of data files; of these, 218 had been removed from active NLS participation:

15 deceased
19 not eligible (1973 graduates, handicapped, etc.)
9 parental refusal
175 second follow-up refusal

The Supplementary Information Questionnaires (Figure 8-2) were administered by field interviewers or by telephone interviewers. Information was received from 3,064 of the 3,686 sample members contacted in this effort.

3. Subpopulation Variables

The six classification variables used to define subpopulations for descriptive studies are sex, high school program, race, geographical region, ability, and SES. These variables also play important roles in analytical studies.

There were 56 first follow-up sample members whose sex code (male or female) was missing and could not be determined by name or other sources; these cases could not be classified and thus were excluded from sex group comparisons.

Figure 8-2. Supplementary Information Questionnaire Administered by Interviewers

OPERATION FOLLOW-UP
Supplementary Information

A. October 1972 Activities

Think back to October 1972, the fall of the year after you left high school. [Circle the numbers of the answers which best fit the situation then.]

1. **Were you:**
   - Working full time? 1
   - Working part time? 2
   - Not working? 3

2. **Were you looking for work?**
   - Yes 1
   - No 2

3. **Were you going to school?**
   - Full time 1
   - Part time 2
   - Not going to school 3

4. **What were the name and address of the school?**
   - Name: _____
   - Address: _____
   - _____

5. **Were you on active military duty?**
   - Yes 1
   - No 2

6. **Were you a homemaker?**
   - Yes 1
   - No 2

B. October 1973 Activities

Think back to October 1973, the fall of the second year after you left high school. [Circle the numbers of the answers which best fit the situation then.]

7. **Were you:**
   - Working full time? 1
   - Working part time? 2
   - Not working? 3

8. **Were you looking for work?**
   - Yes 1
   - No 2

9. **Were you going to school?**
   - Full time 1
   - Part time 2
   - Not going to school 3

10. **What were the name and address of the school?**
    - Name: _____
    - Address: _____
    - _____

11. **Were you on active military duty?**
    - Yes 1
    - No 2

12. **Were you a homemaker?**
    - Yes 1
    - No 2

Figure 8-2. Supplementary Information Questionnaire Administered by Interviewers (continued)

C. General Information

The following questions are more general in nature. [Circle the numbers of the answers which best fit.]

13. What kind of high school program were you in?

General 1
Academic or college preparatory 2
Vocational or technical 3

14. What is the highest educational level completed by your mother and father? If you are not sure, please give your best guess.

(Circle one number on each line.)

	None or grade school only	High School: Did not finish	High School: Finished	Vocational, trade, business, or career program in a school or college: Less than two years	Vocational, trade, business, or career program in a school or college: Two years or more	Academic programs: Some college (including two-year degree)	Academic programs: Finished college (four- or five-year degree)	Academic programs: Master's degree or equivalent	Academic programs: Ph. D., M.D., or equivalent
Father or male guardian	1	2	3	4	5	6	7	8	9
Mother or female guardian	1	2	3	4	5	6	7	8	9

15. What job did your father (or male guardian) hold when you were a senior in high school, even if he is now retired, deceased, or disabled?

a. For whom does (or did) he work? (Name of company, business, organization, or other employer)

(Write in): _____

b. What kind of business or industry is (or was) this? (For example, retail store, manufacturer, state or city government, farming, etc.)

(Write in): _____

c. What kind of job or occupation does (or did) he have in this business or industry? (For example, salesman, foreman, policeman, civil engineer, farmer, teacher)

(Write in): _____

d. What are (or were) his most frequent activities or duties on this job? (For example, selling cars, keeping accounts, supervising others, operating machinery, finishing concrete, teaching grade school)

(Write in): _____

High school programs were defined as general, academic, and vocational/technical. Base-year participants were classified by their responses to item 2 of the Base-Year Student Questionnaire. Resurvey participants were classified by their responses to item 86 in the First Follow-Up Questionnaire. For respondents who did not respond to the questionnaire items, high school classification was determined from SRIF's, if available. Two hundred respondents could not be classified with respect to high school program.

Ethnicity (race) was defined as white, black, Spanish-American or Hispanic (Mexican-American or Chicano, Puerto Rican, other Latin-American), and others (Oriental, American Indian, etc.). Analysis results are reported separately for whites, blacks, and Hispanics; the "other" category was too heterogeneous for meaningful separate reporting. The relatively small (N=919) Hispanic group posed sample size problems, but seemed homogeneous enough to be a meaningful reporting group. There were 1,551 first follow-up sample members whose ethnic codes were missing.

The NLS sample was geographically classified into four regions: Northeast, North Central, South and West:

Northeast--Maine, N.H., Vt., Mass., R.I., Conn., N.Y., N.J., and Pa.

North Central--Ohio, Ind., Ill., Mich., Wis., Minn., Iowa, Mo., N.D., S.D., Nebr., and Kans.

South--Del., Md., D.C., Va., W. Va., N.C., S.C., Ga., Fla., Ky., Tenn., Ala., Miss., Ark., La., Okla., and Tex.

West--Mont., Idaho, Wyo., Colo., N. Mex., Ariz., Utah, Nev., Wash., Oreg., Calif., Alaska, and Hawaii.

Classification by regions was possible for all members of the sample.

The construction of the ability and SES indexes was discussed earlier in this chapter. There were 656 individuals who could not be classified by SES, and 6,539 whose ability scores were not available. A majority of the missing ability scores were due to the fact that resurvey respondents were not tested.

References to Chapter VIII

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Chapter IX

METHODOLOGICAL STUDIES

A. Introduction

As indicated in Chapter II, 231 of the 1,200 primary sample schools did not participate in the base-year survey. The selection of substitute or back-up schools and the adjustment of school weights were two techniques used in the base-year study to adjust for such nonresponse. Selection of substitute schools increased the sample size for schools in the population willing to participate. When designated substitute schools for nonparticipants were not obtained, increased weights were applied to similar participating schools. However, the original base-year sample does not represent the schools in the population that were not willing to participate. In order to reduce possible bias from school nonparticipation, limited Base-Year Student Questionnaire data were obtained retrospectively for a sample of the 1972 senior class from the 231 nonparticipating primary sample schools.

The methodological research studies on the school nonresponse problem were carried out and are presented in two RTI technical reports dealing with reliability of retrospective data and school nonresponse bias. The first of these was to assess the reliability for each of the items of information obtained retrospectively from a special sample of 1972 seniors who completed the base-year questionnaire and also answered the retrospective items during the first follow-up. The second of these studies was to estimate and evaluate the bias in base-year statistics resulting from school nonparticipation. These two studies are summarized in the following sections B and C, respectively.

Two additional methodological studies aimed at improving sample design efficiency for the proposed new-cohort survey are detailed in RTI reports and are summarized in section D. Section D.1 summarizes the first of these reports, relating base-year cost and variance components to determine optimum numbers of sample seniors per school and total numbers of sample high schools.

The second of these sample efficiency reports is summarized in section D.2. This study explores the effect of various NLS sample design features, such as, stratification, clustering, and unequal weighting on the variance of base-year statistics.

B. Reliability of Retrospective Data

As noted in Chapter II, a substantial number of the NLS sample students did not participate in the base-year survey. Responses to 15 items on the base-year student questionnaire were obtained retrospectively for most of these students as part of the first follow-up survey to (1) complete the base-year data file on selected "essential" items for the primary sample and (2) assess the effect of school nonresponse on selected base-year statistics. The objective of this research study was to assess the reliability of data thus obtained. The 15 items used in this analysis were selectively identified by NCES as essential (or basic) items. Because items were not randomly sampled, one can only conjecture about the reliability of obtaining retrospective data for items other than those included in the analysis.

In order to assess the accuracy of retrospectively collected data for the 15 items, a subsample of 500 students that had completed the Base-Year Student Questionnaire was also asked to supply responses to the 15 items as part of the first follow-up. Of the 500 asked, 415 students completed both instruments and provided the data used in this analysis. The following three basic analyses were conducted: (1) hypothesis tests for each of the 15 items that 80 percent of the potential sample respondents would have given the same answer on both occasions; (2) hypothesis tests for each ordinal item (such as income ranges) that 80 percent of the potential sample members would report the same or adjacent category on the two occasions; and (3) hypothesis tests for each question that the response distribution or fraction of responses by category as reported retrospectively by all eligible students would differ from the corresponding base-year response distribution by no more than could be attributed to sampling error.

In the first of these tests, responses on the two occasions were cross-tabulated for each of the 35 variables defined by the 15 questionnaire items (several items comprise multiple-part questions). These so-called probability-of-agreement hypotheses were tested for each variable at the .05 significance level. Using this criterion, 17 of the 26 categorical variables were judged reliable when the data for all 415 respondents were used; when the unacceptable responses (not answered, more than one response, don't know, or other) were excluded from the test statistic, 22 of the 26 categorical variables were judged reliable. The nine "ordinal variables" were all judged unreliable based on this test, even when unacceptable responses were excluded.

The nine variables that could be considered ordinal, (such as income ranges) tended to have a large number of response choices compared to the categorical variable (such as yes-no responses). A test of the relative probability-of-agreement (test 2 noted above) was performed for each of these nine variables. The proportion of responses that were the same or within one response category was calculated, and the hypothesis that the population value of this statistic was .80 or greater was tested at the .05 significance level. Four of the nine ordinal variables were judged reliable based on this test using all responses, and six were judged reliable when the unacceptable responses were excluded.

In the third test, a homogeneity test for the marginal proportions was performed on the base-year by the first follow-up cross-tabulations since for some analyses agreement of marginal proportions rather than agreement of individual responses constitutes the most useful criterion. The hypothesis that the corresponding pairs of marginal proportions were simultaneously equal versus the alternative hypothesis that the two marginal values were not equal for at least one response category was tested using large sample chi-square statistics (35 tests) at the .05 significance level. Seven of the 35 variables (sets of question responses) were judged reliable when all responses were included; when only the data for the respondents who gave acceptable responses on both occasions were used, 19 variables were judged reliable.

To further summarize the results of all tests performed in this analysis, the 35 variables were grouped into five mutually exclusive categories or groups of items based on the results of the various tests of significance performed. A description of each group and a count of variables by group follows:

1. Five variables were judged reliable based on all of the tests performed.
2. Twelve variables were judged reliable on at least one probability-of-agreement test and at least one test of marginal homogeneity.
3. Two variables were judged unreliabile based on probability-of-agreement tests but reliable based on at least one test of marginal homogeneity.
4. Eleven variables were judged reliable based on at least one probability-of-agreement test but unreliable based on all tests of marginal homogeneity.
5. Five variables were judged unreliable based on all tests performed.

The variables in group 1, above, consisted of first follow-up (FFU) items 94B (newspaper in home), 94F (record player in home), 94K (two or more motor vehicles) 95 (race of descent), and 99 (handicapped) and are considered the most reliable of the items in the analysis. Group 2 variables were ranked next

in degree of reliability because they were each judged reliable on one or more probability-of-agreement tests and on one or more tests of marginal homogeneity, but not on all tests performed. Variables in groups 3 and 4 were ranked next in reliability, being judged reliable on either a test of marginal homogeneity or a probability-of-agreement test, but not reliable on both. Group 5 includes only those variables judged unreliable on each test performed in this analysis. The group 5 variables consisted of FFU items 98 (hours worked), 91 (plans of close friends), 92A (father's educational aspirations for student), 93 (parents' income), and 94A (specific place for study).

The retrospective data have been added to the base-year file for students in sample schools that did not participate in the base-year survey. As the present study points up, however, these data for at least one-half of the "retrospective variables" probably reflect memory error. A portion of the "recall error" as it is treated in this study may also, for some questions, reflect measurement error. In this situation, the estimated memory bias might more accurately be termed an estimate of change over time of average reported values (averaged conceptual repetitions at a point in time). Estimates of the magnitude of these errors could be made using matched responses from the subsample of 415 students. Such error estimates would be appropriate for adjusting the retrospectively obtained data that presently reside on the base-year tape. Any analyses using the selected base-year variables where significant biases were detected might do well to incorporate appropriate bias corrections. The analysis of school nonresponse bias outlined in the following section makes use of such adjustments.

C. Bias Resulting from School Nonresponse (Methodology Overview and Summary Findings)

1. Introduction

The complete findings and a detailed description of the methodology summarized here are presented in a technical report. Presuming that a valid probability sample has been selected for use in a survey, some estimation bias will generally result because of nonresponding sample units. Base-year (B-Y) estimates from the student questionnaire data of the National Longitudinal Study were influenced, for example, by 231 of the initial sample schools declining to participate; by approximately one-tenth of the sampled students in cooperating schools failing to participate; and, finally, by missing item responses for participating students. If nonresponding sample students and

schools are different from those that did respond, then the survey estimates will be biased because they were computed using only the data from respondents.

The analysis here deals primarily with the bias that may result from school nonresponse and has as its main objective the estimation of school nonresponse bias in selected B-Y statistics. These statistics consist of estimated totals and percentages derived from the 15 basic items that were analyzed in the previous section. School nonresponse relates here to those primary schools that either refused to participate in the B-Y survey or could not participate because the request was received too late. As noted, above, approximately 20 percent of the initial-sample (primary) schools declined to participate in the 1972 NLS. This magnitude of nonresponse presents a definite potential for bias in the NLS B-Y estimates.

Two common procedures for dealing with the problems of nonresponse involve: (1) the selection and use of substitute sample units, and (2) the adjustment of response weights. Both of these procedures were used in the calculation of B-Y statistics. Each stratum was assigned two primary schools and two backup schools, which were to be used if the primary schools declined to participate. If the combined solicitation of primary and backup schools failed to yield two cooperating schools in a stratum, weight adjustments, as opposed to the solicitation of additional schools, were used to account for the missing schools. Substitute schools in the B-Y survey were similar in size, geographic location, and proximate population density to the nonrespondent schools. Weight adjustments were made for participating schools that were likewise similar to nonparticipating schools.

To develop these estimates of bias, the original B-Y estimates for each primary school are compared with a "best estimate" for that school. This comparison, or difference, for each primary school constitutes the bias for estimating for the school nonresponse bias of the B-Y estimates. The original B-Y estimates for a particular primary school may be based on B-Y responses from students in the primary school, on B-Y responses of students in a substitute (backup) school, or, implicitly, on other B-Y student responses through weight adjustments. The best estimate is based on the currently most reliable data about the primary schools; for most noncooperating B-Y schools, these data have been obtained retrospectively from the resurvey activity described in the previous section. These so-called best estimates did not incorporate the weighting-class adjustments that were used primarily to account for student

nonresponse in the B-Y and FFU estimates nor did the data for 16 augmentation schools that were used to account for sampling-frame incompleteness in the FFU estimates. These refinements, if used to obtain the best estimates, would result more nearly in estimates of overall bias as opposed to that resulting from school nonresponse.

All data used in this analysis, except for the retrospective reliability data of the 415 subsample students, were abstracted from the master-file tape from which the Public Use Data File was prepared. The retrospective reliability data were abstracted from Reliability of Retrospective Data (see Appendix A).

2. Findings and Conclusions

a. Findings

The findings herein are couched largely in the form of statistical inferences. Differences are sure to exist between an initial sample of primary schools and a backup sample of substitute schools, but such differences may be largely attributable to sampling error. For each category of each question, the null hypothesis (H_o) of zero bias was tested at three significance levels, namely, α = .10, .05, and .01 with two-sided standard normal critical regions.

A majority of the estimated totals were found to be significantly biased--most negatively. More noteworthy, however, is that numerous proportion estimates were significantly biased (the B-Y statistics were reported as proportions). Considering the large number of hypotheses being tested (several response categories for each of the 35 question subparts studied in section B), one should expect to reject the null hypothesis of zero bias a certain number of times even if the difference were attributable only to sampling error. It is useful, therefore, to compare the number of categories in which H_o is rejected versus the number of rejections that could be expected to result from the commission of type I(α) errors. Table 9-1 presents this comparison and reveals that H_o was rejected far too often to be accounted for entirely by α error. For the .05 significance level, for example, we would expect to reject approximately eight times each for totals and proportions if H_o were true, but, rather H_o was rejected 91 times for totals and 26 times for proportions.

The estimated number of 1972 seniors, based on B-Y methodology and the accepted numbers of 1972 seniors in sample schools at the time of this study is indicated by this study to contain a statistically-significant downward bias of five percent. This bias suggests that the larger schools were

Table 9-1. Frequency of Significant School Nonresponse Biases in Selected B-Y Estimates and the Frequency of Such Biases that Might Be Erroneously Declared Significant (α error)*

Type of estimator	Significance level, α	Biases declared significant, number	Expected number of Type I errors**
Totals	0.10	99	16
Proportions	0.10	33	16
Totals	0.05	91	8
Proportions	0.05	26	8

*Based on data from the NLS B-Y, FFU, and Recall-Error surveys, 1972 and 1973.

**Expected number of times $H_o: \beta = 0$ might be rejected because of type I (α) error is calculated as α times the total number of tests (155).

underrepresented as a result of substitution and weight-adjustment actions taken in the B-Y to compensate for school nonresponse.

Biases and their implications can be analyzed for each question individually from the statistical results presented in Bias Resulting from School Nonresponse: Methodology and Findings (see Appendix A). Such individual analyses are not presented here, except for an example to demonstrate pertinent considerations regarding the biases and their magnitudes as they relate to the accuracy of B-Y estimation. The first B-Y question that was studied, BSYRQ2, is used for this example. BYSRQ2 refers to the student's high school program. The question and its eight answer-categories are:

Which of the following best describes your present high school program?

(Circle one)

General	1
Academic or college preparatory .	2
Vocational or technical	
Agricultural occupations . . .	3
Business or office occupations	4
Distributive education	5
Health occupations	6
Home economics occupations . .	7
Trade or industrial occupations	8

Three categories for estimated totals and four for estimated proportions were found significantly biased for this question. Table 9-2 reveals that, for totals, categories 1, 2, and 4 are negatively biased. The relative biases of these category totals range in magnitude from a minus 3.4 percent for the number answering "Academic" to a minus 9.7 percent for the number of students indicating "General" programs. For ratio estimates, significant positive bias was indicated for three categories, and significant negative bias was indicated for one category. One of the more noteworthy observations here relates to the biases indicated for ratio estimates. Three ratio estimates are significantly biased at the .05 level or less. According to the investigation, the proportion estimated for "General" school program is negatively biased by 3.9 percent, the proportion in "Distributive education" is positively biased by 16.9 percent, and the proportion in "Health" is positively biased by 16.8 percent.

A measure of the importance of bias can be obtained by comparing it to sampling error. One such comparison, $\sqrt{MSE}/SE$, is presented in Table 9-2. The mean square error (MSE) becomes more pertinent than the standard error for stating confidence intervals when significant bias influences a statistic; MSE is equal to the variance of the estimate plus the square of the bias.

When the ratio, $\sqrt{MSE}/SE$, is near unity, the bias is relatively unimportant, the standard deviation or sampling error (SE) may be used to calculate the confidence interval for an estimate. For the proportion estimates presented in Table 9-2, only two, those for categories 7 and 8, may be satisfactorily described using SE (or coefficient of variation as was used to report B-Y statistics). When this ratio, $\sqrt{MSE}/SE$, is less than approximately 1.4, the MSE can be used to calculate the confidence interval without serious error, as if it were the SE. As can be seen in the final column of Table 9-2, sampling error intervals for the proportion estimates with relatively large $\sqrt{MSE}/SE$ ratio lead to seriously overstated levels of confidence. For the proportion estimated for category 1, for example, the use of sampling error alone would result in the statement that the estimated proportion is within $\pm$ 1.96 SE of the true proportion with a confidence level of 0.95 when, in fact, this statement holds with a confidence level of only 0.36.

b. Conclusions

This analysis of possible bias in B-Y estimates, which relates to 35 questions on the Student Questionnaire, indicates that school nonresponse substantially affected many of the statistics developed from the B-Y survey. The nonresponse effect, which will be termed NR bias, was identified by viewing the difference between B-Y estimates as they were calculated versus estimates that incorporate the additional information obtained during the first follow-up survey of 1973. This difference necessarily relates almost exclusively to school NR bias because the difference between the two estimates results solely from reducing the school NR from approximately 20 percent to a minimal two percent.

The average NR bias is approximately a negative 5 percent for estimated totals, such as the estimated number of eligible seniors in 1972, or the estimated number of seniors who would respond to a particular-question category on the Base-Year Student Questionnaire. This difference suggests that, within a major stratum, the larger schools declined to participate more frequently than did the smaller schools.

Table 9-2. Bias and Confidence Levels for B-Y Estimates Derived from BSYRQ2 [a]

Question category	Type of estimate	"Best estimate" [b]	B-Y estimate [c]	Relative bias in B-Y estimate, percent	$\frac{\sqrt{MSE}}{SE}$ for B-Y estimate	Confidence level for the $\hat{\theta} \pm 1.96$ SE interval
		(1)	(2)	(3)	(4)	(5)
All categories	total	3,016,526	2,862,893	-5.1***	4.2	0.02
1	total	1,019,685	921,217	-9.7***	5.3	0.00
2	total	1,265,639	1,223,047	-3.4**	1.9	0.63
3	total	45,149	38,826	-14.0	2.3	0.46
4	total	357,950	324,546	-9.3**	3.2	0.15
5	total	72,833	81,686	12.2	2.0	0.58
6	total	24,790	25,318	2.1	1.0	0.94
7	total	30,016	28,235	-5.9	1.2	0.91
8	total	163,581	152,905	-6.5	1.8	0.67
1	proportion	.3422	.3294	-3.9**	2.5	0.36
2	proportion	.4242	.4343	2.3*	2.0	0.60
3	proportion	.0152	.0144	-5.6	1.3	0.87
4	proportion	.1202	.1161	-3.5	1.6	0.77
5	proportion	.0245	.0295	16.9***	3.3	0.12
6	proportion	.0084	.0101	16.8**	2.6	0.32
7	proportion	.0103	.0108	4.6	1.1	0.91
8	proportion	.0549	.0554	0.9	1.0	0.94

*, **, *** significant at the .10, .05, and .01 percent levels, respectively, with two-sided standard normal critical regions.

(a) Based on data from the NLS B-Y, FFU, and Recall-Error surveys, 1972 and 1973.

(b) Termed "best estimate" for purposes of assessing the biasing effect of school nonresponse comparison in this study and does not actually comprise the best estimate available; for example, it does not reflect adjustments for sampling frame incompleteness or weighting class adjustments that can be used to compensate for student NR in cooperating schools. Also, category totals were not forced to sum to what might be termed one of the more reliable estimators of number of seniors in all categories, namely that based on student record information.

(c) These B-Y estimates were calculated specifically for this study using B-Y methodology and data that were available at that time, but because of recent revisions to the number of seniors in some sample schools, these B-Y estimates differ slightly from previously published B-Y estimates.

The B-Y methodology also involved the substitution of participating schools for schools that had no eligible seniors, were closed, or did not exist--"valid zeros." Admittedly, such a substitution is not appropriate for the estimation of totals, but the effect was apparently small--resulting in approximately a 1 percent increase in estimated totals. Best estimates of totals presented in this report reflect the zeros as valid responses.

Ratio statistics (proportions) have been used thus far in presenting the NLS findings, and providing that student-response proportions are approximately the same for participating and nonparticipating schools, the negative bias in totals would not be of particular concern. The analysis indicates, however, that the response proportions are not uniform for response and nonresponse domains, and that substantial bias from school NR is also reflected in the B-Y estimates of proportions. These biases are alternately positive and negative for each question because if one question-category is biased in one question-category is biased in one direction then one or more of the remaining categories will necessarily reflect this bias in the opposite direction. Statistically significant bias was indicated for estimated proportions in 14 of the 35 questions studied. (As noted in section B, the 35 questions comprise a selective sample and, hence, the study findings relate only to these questions). Approximately one-third of the questions had one or more categories that reflected proportion-estimated bias significant at the 5 percent level or less.

In view of these findings, several topics become pertinent for consideration. These include:

- Because of this bias, accuracy statements for many of the B-Y ratio estimates are probably overstated--users of B-Y statistics should be cognizant of this.
- When comparing follow-up statistics against B-Y statistics, allowances should be made for the bias in those proportions where bias was indicated. If patterns can be identified in the types of responses that are upward biased, downward biased, or not biased, rough approximations of bias might also be conjectured for selected questions that were not investigated in this study. This possibility, however, has not been dealt with here.
- Initially, RTI proposed to investigate the individual effectiveness of several techniques that might be used to deal with the problem of school NR. The computer software for this additional work has largely been

developed, but has not been utilized. In view of the implications of the findings thus far, however, it now seems that this additional analysis may be instructive. If no significant bias had been found in the B-Y ratios, the additional analysis would have been somewhat academic.

- When subclass comparisons (age-sex specific, for example) are contemplated, valid interpretation of observed differences may be precluded by biases, which may be even larger, relatively, than those indicated for aggregate statistics. Therefore, although biases at the subclass level were not estimated in this investigation, the usefulness of developing unbiased domain statistics should be considered.

D. Sample Design Efficiency Studies

Two principal reports dealing with analyses of the efficiency of the NLS base-year sample design are summarized in this section.

1. Efficiency Study of NLS Base-Year Design

The sampling design for the National Longitudinal Study of the senior class of 1972 may be viewed as a deeply stratified two-stage design with high schools and seniors within high schools constituting the two sampling stages. The problem of finding the optimal design involved a search for the numbers of sample schools and students that would minimize the variance of NLS sample statistics for a fixed total survey cost.

If the objective of a sample survey is to estimate only one statistic, the usual procedure is to choose the design for which the variance of that statistic is minimized for a given (fixed) survey cost. When numerous statistics are to be estimated from a single sample, the criterion for choosing the optimum design is not obvious. Plausible criteria include (1) the design that is optimal for most statistics and (2) the design with maximum average efficiency. The criterion of maximum average efficiency was used in this analysis.

Suppose there are M designs D_k, ($k = 1, 2, \ldots, M$) and N statistics Y_ℓ, ($\ell = 1, 2, \ldots, N$). Let the estimated variance components for Y_ℓ be identified as $V(\ell,1)$ and $V(\ell,2)$ for the school and student components, respectively. Let C_1 be the marginal cost of adding another sample school; let C_2 be the marginal cost of adding another sample student; and assume a linear cost function. Then the efficiency of design-k for statistic-ℓ is defined as

$$E(k,\ell) \equiv \frac{\text{minimum variance for statistic-}\ell\text{ at the given cost}}{\text{variance of statistic-}\ell\text{ with design-k}} \qquad (1)$$

$$= \frac{\text{Min } V(\ell|C)}{V(\ell|k)}$$

where design-k has r_k sample schools and $r_k s_k$ sample students. The denominator of $E(k,\ell)$ may be written as

$$V(\ell|k) = \frac{V(\ell,1)}{r_k} + \frac{V(\ell,2)}{r_k s_k} \quad , \tag{2}$$

while the numerator is the minimum value of (1) over r and s subject to the linear cost constraint

$$C = C_o + r\,C_1 + rs\,C_2;$$

that is,

$$\text{Min } V(\ell|C) = \frac{\{C_1 V(\ell,1) + C_2 V(\ell,2)\}^2}{C - C_o} \quad .$$

Once the efficiencies were computed, the average efficiency, M_k, and the variance of the efficiencies, V_k, for each design were computed as

$$M_k = \frac{1}{N} \sum_{\ell=1}^{N} E(k,\ell),$$

and

$$V_k = \frac{1}{N-1} \sum_{\ell=1}^{N} \{E(k,\ell) - M_k\}^2 \quad .$$

The steps involved in the analysis of the efficiency of the base-year sample design are listed here as an aid in summarizing the study:

(A) Step 1 - A cost model was developed that expressed the total variable costs of the survey as a linear function of the numbers of schools and students sampled.

(B) Step 2 - A set of nine feasible sample designs with approximately equal total variable costs were derived using the cost parameters estimated in step 1.

(C) Step 3 - Twenty-one base-year variables and eight domains defined by race, sex, and father's education were chosen for the analysis.

(D) Step 4 - Variance components were calculated using Seeger's[1] formulae and Taylorized linearizations for each of 357 statistics defined by the variables and domains chosen for study. For each of the 21 base-year variables, components were obtained for the national mean, eight domain means, and eight differences between the domain and national means.

(E) Step 5 - The efficiency of each statistic (ℓ = 1, 2, ..., 357) for each of the sample designs (k = 1, 2, ..., 9) was computed as the minimum variance of the statistic at the given cost divided by the variance of the statistic with design-k.

(F) Step 6 - The average efficiencies of each design were calculated for all statistics, national statistics, and domain statistics.

(G) Step 7 - The "optimum" designs for all statistics, national statistics, and domain statistics were chosen as the designs with the highest efficiencies.

The following points summarize the principal results of the NLS base-year efficiency study:

(A) The "optimal" design for national statistics involves 21 sample students per school.

(B) The "optimal" designs for domain statistics involve 24 students per school for white students and approximately 30 per school for the other domains included in the study.

(C) The current NLS design with 18 students per school is not far from the "optimal" design.

(D) Designs with from 18 to 30 sample students per school all have high average efficiencies for both national and domain statistics.

(E) The criteria of maximum mean efficiency and minimum standard deviation of efficiencies appear to lead to the same "optimum" design choice.

(F) The "optimal" designs are not very sensitive to errors in the estimated cost component ratio, C_1/C_2, of from 0.67 to 1.50.

(G) The ratios of the student component estimate to the sum of school and student component estimates averaged approximately 97 percent for national statistics and from 98 to 99 percent for domain statistics. That is, of the total variation among student responses within final strata at least 97 percent was within schools.

The most serious limitation in these results is the restriction of cost and variance components to base-year levels. A subsequent study that paralleled the methodology outlined above made use of cost components appropriate for a base-year survey and five follow-up surveys. The variance components for this analysis were based on change variables that recorded the difference between comparable base-year and first follow-up responses. The results of

this study will be summarized in a separate report along with the other "new-cohort" studies.

2. Effects of Stratification, Clustering, and Unequal Weighting on the Variances of NLS Statistics

The design effect or "DEFF", defined as the ratio of the actual variance of a survey estimate to the variance for a simple random sample of the same size, is useful in evaluating a sample design.[2] The DEFF measures the combined effects of clustering, stratification, and unequal weighting on the variances of survey estimates.

Variance component estimates computed for 357 statistics in the study of NLS design efficiency were used to calculate estimated design effects. For each statistic, the components estimated were:

σ_0^2 ≡ component of variance between final strata;

σ_1^2 ≡ component of variance between schools within final strata, and

σ_2^2 ≡ component of variance between students within schools.

The variance component estimates were used to model the variance of NLS statistics, as follows:

$$\Sigma_1^2 = \frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_1 n_2} \quad ,$$

where n_1 ≡ the number of sample schools, and

n_2 ≡ the number of sample students per school.

The approximate variance of each statistic for a simple random sample of $n_1 n_2$ students was calculated as

$$\Sigma_3^2 = \frac{\sigma_0^2 + \sigma_1^2 + \sigma_2^2}{n_1 n_2} \quad .$$

Then the design effect, D, fr each statistic was estimated as

$$D = \frac{\Sigma_1^2}{\Sigma_3^2} \quad ,$$

using $n_1 = 1{,}043$ and $n_2 = 17$, the approximate numbers of responding sample schools and students per school in the NLS base-year survey. The estimated design effects were largest for national means and tended to vary with the average cluster size (number of respondents per school) for subgroup means. The design effects for subgroup, or domain, means were larger than those for the differences betweeen subgroup and national means.

The variance component estimates were used to approximate the effect of clustering the sample of students by school and the effect of stratifying schools. Recalling that $D = \Sigma_1^2/\Sigma_3^2$, the estimated design effect may be rewritten as

$$D = 1 + (n_2 - 1)\,\delta_{c/w} - n_2\delta_{rs/w} \quad ,$$

or

$$D = C_{rw} - n_2\delta_{rs/w} \quad ,$$

where

$$\delta_{c/w} = \frac{\sigma_0^2 + \sigma_1^2}{\sigma_0^2 + \sigma_1^2 + \sigma_2^2} \quad ,$$

and

$$\delta_{rs/w} = \frac{\sigma_0^2}{\sigma_0^2 + \sigma_1^2 + \sigma_2^2} \quad .$$

The C_{rw} represents the effect of clustering the sample of students by school attended, where $\delta_{c/w}$ is the intraschool cluster correlation for an unstratified selection of schools and students given the unequal weighting of the NLS base-year sample design. The last term in D, above, represents the reduction in the variances of survey estimates obtained from school stratification, where $\delta_{rs/w}$ is the intrastratum cluster correlation or the fractional reduction in variance for a stratified random selection of students compared to a completely random selection.

If we introduce Σ_2^2, the variance of a survey estimate for an unstratified cluster sample,

$$\Sigma_2^2 = \frac{\sigma_0^2 + \sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_1 n_2} \quad ,$$

then we can write

$$C_{rw} = \frac{\Sigma_2^2}{\Sigma_3^2} = 1 + (n_2 - 1)\ \delta_{c/w},$$

as before. We can also write the effect of stratification, S_{cw}, in a multiplicative model as

$$S_{cw} = \frac{\Sigma_1^2}{\Sigma_2^2} = \frac{C_{rw} - n_2\ \delta_{rs/w}}{C_{rw}} .$$

Now we can write

$$D = \frac{\Sigma_2^2}{\Sigma_3^2} \cdot \frac{\Sigma_1^2}{\Sigma_2^2} = C_{rw}S_{cw},$$

and the design effect has been partitioned into C_{rw}, the effect of clustering, and S_{cw}, the effect of stratification.

Clustering the sample of students increased variances of national estimates by an estimated 83.5 percent over simple random sampling. Stratifying the clusters using the NLS school stratification scheme reduced the variances of national estimates by an estimated 20.3 percent of $100(1 - S_{cw})$, on the average, below what they would have been with unstratified cluster sampling. Both effects for subgroups were smaller and there appeared to be a tendency for both effects to approach 1.0 as the subpopulation size gets small. In general, the increase in variance due to cluster sampling was only partly offset by the reduction due to stratification (the combined effect of stratification, weighting, and clustering for national estimates is approximately 1.835 x 0.797 = 1.462).

The variances of survey estimates are increased when the sample elements (students) have unequal weights. Unequal weights arise from oversampling certain subpopulations, from using imprecise size measures to select sample schools, and from nonresponse adjustments. The estimated design effects discussed here include the effect of unequal weighting, as do the estimated effects of stratification and clustering. That is, the design effect was partitioned into

$$D = C_{rw}S_{cw},$$

whereas it would be possible to partition the design effect into

$$D = WSC.$$

In order to obtain some information about the effects of unequal weighting in the NLS design, an approximate analysis was conducted. The analysis involved estimating the approximate effect of unequal weighting on the variances of survey estimates. A portion of the unequal weighting resulted from oversampling selected segments of the population; the effect of this oversampling was estimated. The remainder of the unequal weighting, aside from oversampling, is caused by nonresponse adjustments, unequal stratum sizes, and imprecise school size measures.

The variances were increased by oversampling in the NLS design for most subpopulations, and a moderate reduction in variance was obtained only for blacks. Variances of estimates for the total population of students were increased, because of oversampling, by 13 percent. Sampling allocations proportional to total population are near optimal for national estimates. The NLS design employed a higher-than-optimum oversampling rate for all subpopulations studied except blacks, where a higher degree of oversampling would have been optimal. For a number of subpopulations, an allocation proportional to total population was indicated as optimum.

The effect of oversampling on the variances is only a part of the effect of unequal weighting. The assumption of simple random sampling within the two strata implies equal weighting within strata, whereas the NLS sample had unequal weights.

The effect of unequal weighting within the low SES (socioeconomic status) and high SES strata can be approximated by considering the ratio

$$\omega^2 = \frac{\sum_h \sum_i \sum_j W_{hij}^2}{n_1(\bar{W}_1)^2 + n_2(\bar{W}_2)^2},$$

where the overall sum of squared student weights in the numerator of ω^2 extends over seniors-j within schools-i of final strata-h, with $\bar{W}_1$ denoting the average student weight for the n_1 respondents obtained from the low SES strata, and $\bar{W}_2$ denoting the corresponding average weight for the n_2 high SES respondents; the denominator of W^2 represents the sum of squared student weights for simple random sampling within the two SES strata.

The estimated increase in variance was fairly sizeable for all subpopulations and for the total population. This portion of the unequal weighting arises from unequal final stratum sizes, imprecise size measures, and weight adjustments used to correct for nonresponse. These results should be regarded as rough approximations because assumptions of equal variances within strata and fixed subpopulation sizes are required to derive the formulae for ω^2.

The variance modeling described in this report suggested that the NLS school stratification variables reduced the variances of national estimates by approximately 20 percent compared with sampling clusters of students selected from an unstratified school frame. Variances of subpopulation estimates were reduced by lesser amounts, from 6 to 20 percent, depending on the subpopulation. Described in this section are the analyses used to ascertain which stratification variables accounted for most of the reduction in variance.

The analysis involved calculating several sets of variance component estimates for a linear variance model, which included terms for the five major stratification variables. Variance components corresponding to the following stratification variables were estimated--SES (socioeconomic status), size of school, type of control (public, Catholic, non-Catholic private), geographic region, and proximity to college or university.

Tentative conclusions were that region was perhaps the strongest stratification variable, that control was perhaps the poorest, and that the other three variables were somewhere in between region and control. While we were not able to precisely estimate the proportion of the stratification effect attributable to each of the variables, some rough indications of the relative importance of the five major stratification variables were obtained. Indications were that control may not have been a very useful stratification variable, but that region, SES, size, and proximity were all useful with their order of importance indicated by position in the list.

References to Chapter IX

1. Seeger, Paul
   1970. "A Method of Estimating Variance Components in Unbalanced Designs," Technometrics 12, pp. 207-218.

2. Kish, Leslie.
   1965. Survey Sampling. John Wiley and Sons, New York.

Chapter X

DESCRIPTIVE ANALYSES

A. Introduction

The plan prepared at the beginning of the first follow-up included seven final reports and regular bimonthly progress reports. The progress report requirement remained unchanged, but the plan was later modified to include five basic products of the NLS study:

1. Data Users Manual. Information needed to use a data tape intended for general research.
2. Tabular Results (Codebook). Weighted First Follow-Up Questionnaire response tabulations presented separately by sex, race, ability, socioeconomic status, region, and other cross-classifications among these attributes.
3. Descriptive Analytical Reports. Four reports of results--each with a different focus and technical level requiring a different level of understanding to assimilate its meaning.
4. Methodological Reports. Four reports of methodological studies--two involving the sample design, one involving reliability of retrospective data, and one involving school nonresponse bias.
5. Final Report. Descriptions of the sample design, the first follow-up surveys, and the procedures used in instrument design, data collection, and file preparation (chapters I-VIII); summaries of methodological studies and reports that had been submitted separately (chapter IX); and extracted highlights of the four descriptive analytical reports submitted separately (chapter X).

All methodological and descriptive reports submitted to NCES by RTI during the project are annotated in appendix A. The reader interested in going beyond the summaries and conclusions in this final report for relevant materials which can be requested from NCES is encouraged to examine appendix A.

This chapter describes some of the more salient results emanating from the four descriptive reports concerned with postsecondary education and work; plan fulfillment and activity state transitions; self-esteem, locus of control, and life goals; and the distribution and impact of financial aid.

B. Education and Employment Statuses, 1973-74

A substantial proportion (56 percent) of the high school class of 1972 was enrolled in postsecondary institutions in the fall and winter of 1973-74.

1. Enrollment in Postsecondary Institutions

The students' backgrounds and personal characteristics--high school program, academic ability, socioeconomic status, race, and geographic region--appeared to be important predictors of postsecondary enrollments.

High School Curricula. High school curriculum was highly related to college enrollment. Two of every three high school students (68 percent) enrolled in college preparatory (academic) programs were enrolled in academic studies in 2-year or 4-year colleges. Relatively few from vocational/technical high school programs were pursuing college degrees (13 percent), but twice as many were doing so among those who had been enrolled in a "general" program (27 percent).

Academic Abilities. College enrollment was as strongly related to ability (measured by a composite score of four verbal and nonverbal tests) as it was to high school curriculum; however, ability had little relation to enrollment in vocational/technical schools. In the high ability quartile, seven of every 10 students (70 percent) were enrolled in academic programs in 2- or 4-year colleges. In contrast, 17 percent of the low ability quartile were enrolled and 39 percent of those in the middle two quartiles were enrolled. In postsecondary vocational/technical schools, 14, 17, and 12 were the percentages for the low, middle, and high ability groups.

Socioeconomic Status. Socioeconomic status (SES) was strongly related to the patterns and nature of postsecondary education even when ability was controlled. SES appeared to be about as important as ability in predicting who would pursue college academic studies. Grouping the seniors in a composite SES index, seven of every 10 in the upper SES quartile were enrolled in 2- or 4-year colleges, and almost twice as many (38 percent) in the middle two quartiles were enrolled as there were from the lowest quartile (22 percent). In vocational/technical schools, the respective enrollments from high to low were 14, 16, and 13 percent.

Among those attending postsecondary institutions in October 1973, SES backgrounds were related to the educational experiences in the following ways: 30 percent of high SES, 22 percent of middle SES, and 19 percent of low SES students were in private institutions; twice as many low SES (15 percent) and middle SES (13 percent) as high SES (7 percent) students were enrolled part time; and high SES students were most likely to be in the sciences, humanities, and fine arts.

Racial Groups. Within ability groups, whites were more likely than either blacks or Hispanics to be enrolled in academic studies in 2- or 4-year colleges, but these minority groups had higher rates of overall college attendance. For whites, blacks, and Hispanics, the college attendance rates in the lowest ability quartile were lowest and they were highest in the highest ability quartile. Not controlling for ability, the attendance figures were 43, 35, and

32 percent. In vocational/technical schools, the racial differences were generally negligible--14 percent for whites, 16 for blacks, and 14 for Hispanics when ability was uncontrolled or controlled.

Sex Groups. Sex differences in college attendance were not consistent across races. In general, the enrollment rates in academic studies in 2- and 4-year colleges were slightly higher for males (44 percent) than for females (40 percent). Among whites and Hispanics, males had higher enrollment rates than females: 46 percent for white males versus 41 percent for white females, and 37 percent for Hispanic males versus 29 percent for Hispanic females. Among blacks, however, females had higher enrollment rates than males (37 versus 32 percent).

There were no sex differences apparent in the kinds of institutions attended (public, private, 2-year, 4-year) or in the full-time and part-time enrollments. However, choices of subject fields differed markedly and followed traditional sex roles: males were more likely to choose business, engineering and mechanics, and the physical sciences, while females were more likely to choose education, the humanities, fine arts, home economics, nursing, and office/clerical subjects.

Regional Groups. Enrollments in academic studies in both the Northeast and West (46 and 44 percent) were generally higher than in either the South or the Northcentral states (39 and 40 percent). These rates partly reflected racial differences. Regional differences for blacks and Hispanics were substantially larger than for whites.

Enrollment patterns appeared to reflect regional differences in the availability of junior and community colleges and universities in October 1973. Most of the students not included in this pattern of differences were attending vocational, trade, business, or other career training schools. Students in the West were more likely than those in other regions to be in public institutions part time. On the other hand, no regional differences were found in the types of fields the students elected to study.

2. Participation in the Labor Force

In the fall and winter of 1973-74, 65 percent of the high school class of 1972 were employed either full time or part time in the civilian labor force. Among those not holding jobs, one out of five was looking for work. The high school curriculum, SES background, race, sex, and regional differences in labor force participation and the kinds of work are described herein.

High School Curricula. High school students who had been enrolled in vocational/technical programs in 1972 were more likely than others to have jobs in October 1973. As anticipated for those from academic programs, the lower rates of employment reflected the fact that more of these were enrolled in college. In October, 84 percent from these programs indicated "going to school" as a reason for not working; only 33 percent of the vocational/technical students gave this reason.

Socioeconomic Status. More young people from upper SES backgrounds were not working in October 1973. Yet, among all without jobs, twice as many persons from lower as from upper SES backgrounds were looking for work. Again, these results reflected the fact that more young people from upper SES backgrounds were going to college and were not working.

With regard to reasons for not working, those from upper SES backgrounds more often than those from the lower SES backgrounds indicated "did not want to work" and "going to school." Those from the lower more often than those from the upper noted "not enough job openings available," "required work experience I did not have," and "not educationally qualified for types of work available." One of the largest SES differences was the proportion of women reporting "full-time homemaker" as a reason for not working; the proportions were 42 percent in the lower SES quartile and 8 percent in the upper.

Sex Groups. Sex differences in employment rates were not substantial. The percentage of working males, as a whole, was not much larger than that of females (68 vs 62 percent). Among those without jobs, women were somewhat more likely than men (22 versus 18 percent) to be looking for work. Women were generally as satisfied as men with their jobs. Most women were employed in traditionally "female" clerical and sales jobs. Women from low SES backgrounds and women who had been enrolled in high school vocational/technical programs often cited being a "full-time homemaker" as one reason for not working.

Racial Groups. In October 1973, employment rates were somewhat lower for blacks (58 percent) than for whites (66 percent) or Hispanics (68 percent). Among those not working, about twice as many blacks (37 percent) and Hispanics (34 percent) as whites (17 percent) were looking for work. Reasons for not working varied noticeably with racial identification. Whereas whites more often than minorities tended to reply "going to school" and "did not want to work," both blacks and Hispanics more often than whites mentioned "not enough job

openings available," "required work experience I did not have," and "not educationally qualified for types of work available." These differences generally persisted when SES backgrounds were controlled. In broad occupational categories (professional/managers, clerical/sales, craftsmen, and others), race differences were negligible. Likewise, no significant differences appeared in levels of job satisfaction.

Regional Groups. Regional variations in employment were relatively small. Respondents from the Northcentral states had somewhat higher rates of employment. Western residents were somewhat more likely to be without jobs and looking for work. (These results, however, were not consistent when controlling for race.) The only regional difference in the reasons for not working was in the proportion "going to school." This proportion was higher in the Northeast, where it is associated with generally higher rates of college attendance for whites only. The proportions employed in clerical and sales positions were significantly higher in the Northeast than in the West (43 vs 35 percent), but the proportions in other occupational categories showed smaller differences.

3. Application of Job Training

Less than one-third (29 percent) of the 1972 class received job training to prepare them for immediate employment upon leaving high school. More males (37 percent) than females (20 percent); slightly more blacks (33 percent) and Hispanics (33 percent) than whites (28 percent); and more low ability (37 percent) than high ability (15 percent) received job training. The differences reflected differences in curriculums which prepare for college instead of jobs.

Although the majority of students (60 percent) who received training reported they had applied their training in jobs, 24 percent cited that they had not used the training and a few (16 percent) had not looked for work where the training could be used. Females, whites, and low ability members were more likely than their counterparts to report that they were using their training in jobs. Of those who had found jobs in which they could expect to use their high school training, most responded favorably to the effects and usefulness of the training. When asked if they considered the training a wise choice, 87 percent felt that it was. Group differences were not substantial.

C. Education and Employment Plans, 1972-73

Plans for 4-year college had the highest probability of being fulfilled. Over 81 percent of those who planned in the spring of 1972 to go to a 4-year college were in that status in October of 1972; less than 5 percent had begun

working full time. Plans for 2-year colleges or vocational/technical schools had much lower probabilities (63 and 49 percent) of being fulfilled. A large proportion of those who had planned to work full time were doing so. Others were doing something else, such as working part time (10 percent) or going to school (14 percent).

1. Fulfillment of Plans

Plan fulfillments were related to ability, SES, high school curriculum, race, sex, and region.

Academic Abilities. High ability respondents were more likely than low ability respondents to fulfill their academic and work plans. Ability was not as closely related to fulfilling work plans as it was to fulfilling educational plans, where there were wider differences among ability groups.

Socioeconomic Status. Upper SES seniors were more likely than lower SES seniors to fulfill educational plans, and they were more likely to change from work plans to study activities. Plans and activities for each of the three SES levels followed the same trend as that of the ability levels. The differences between the three SES groups held for those planning on 2-year colleges or vocational/technical schools. Upper SES respondents were least likely to fulfill plans to work.

High School Curricula. Plan fulfillment reflected the activities for which the high school curricular programs were preparing the students. Students in high school academic programs were most likely (85 percent), while vocational/technical students were least likely (56 percent) to fulfill 4-year college plans. Vocational/technical students were, however, more likely to fulfill employment plans (68 percent) than their academic counterparts (59 percent).

Academic programs had relatively high proportions of high SES and high ability students. Vocational/technical programs had relatively high proportions of low SES and low ability students. Ability and SES characteristics were closely related to plan fulfillment. Thus, before drawing conclusions about program influences on plan fulfillment, one should adjust for SES and ability differences, local economic conditions, and educational opportunities in community colleges and vocational/technical schools.

Racial Groups. Ethnic backgrounds were related to plan fulfillment. Hispanics were least likely and whites were most likely to fulfill plans for attending a 4-year college. Blacks were less likely than either whites or Hispanics to fulfill plans for 2-year colleges or working full time. For most types of planning, blacks had a considerably higher probability than whites of being

in some activity other than the original planned activity of full-time school, work, the military, or homemaking.

Sex Groups. Sex differences in plan fulfillment were not nearly as great as differences between racial, ability, or SES groups. Females were more likely than males to fulfill plans for vocational/technical training and somewhat less likely than males to fulfill those for working full time or attending a 2-year college in October 1972.

Regional Groups. Differences among regions in regard to fulfilling plans for 4-year colleges were not large: from 79 percent in the South to 84 in the Northeast. Seniors most likely to work full time were in the Northeast; those least likely were in the West. Seniors in the West had the greatest likelihood of fulfilling 2-year-college plans. Going to 2-year colleges and then transferring to 4-year colleges may be more prevalent in the West than in the other regions.

2. Transitions in Activities

About three-quarters of respondents enrolled in school or working full time in October 1972 remained in that status in October 1973. Of those working full time in October 1972, 12 percent were going to school in October 1973.

High School Curricula. High school academic program students were more persistent in postsecondary educational activities than students from other programs. Those from academic programs were more likely than those from vocational/technical or general programs to persist in a 4-year or 2-year college; the same trend was true for postsecondary vocational/technical programs. Among persons working full time in October 1972, high school academic program students were more likely than vocational or general program students to be in activity states other than school or work in October 1973.

Academic Abilities. The low ability group was substantially less stable than the high ability group in regard to activity state transitions, except in work activities. The highest dropout rate for full-time study across all three types of postsecondary institutions was for the low ability group, as expected; surprisingly, however, the continuance rate for 4-year colleges was 71 percent for this group (versus 76 percent for the middle ability group and 86 percent for the high ability group). Low ability group members working full time in October 1972 were more likely than those with high ability to be working full time in October 1973. Four times as many high ability as low ability members working in October 1972 were going to some type of school in October 1973.

Socioeconomic Status. The upper SES group was substantially more stable than the lower SES group in educational transitions. The relationships of SES to full-time continuance in a 4-year college and changing from work to college were similar to the ability relationships, but were not as strong.

The relationship of SES to continuance in full-time work was similar to that for ability: that is, 77 percent of lower SES members were working full time in October 1972 and in October 1973, and another 15 percent of the low SES group which was working full time in October 1972 were either working part time, looking for work, serving in the military, or (in the case of females) married and not working.

Racial Groups. Blacks, whites, and Hispanics were substantially similar to each other in postsecondary school dropout rates and transition matrices. One exception was for black and white females who were homemakers in 1972; 41 percent of these black females were working full or part time in 1973, compared to 29 percent of the white females. Race seemed to be highly related to transitions from plans to activities but less related to transitions within activity states. Ability and SES tended to be more highly related than race to activity state transitions.

Sex Groups. Sex differences varied with type of activity. Males and females had about the same persistence rates in full-time study in 2- and 4-year colleges. However, the female persistence rate in vocational/technical schools (30 percent) was considerably lower than the persistence rate for males (46 percent), probably because females tended to enroll in shorter vocational courses like cosmetology and stenography. Females working full time in October 1972 were less likely than males to be working full time in October 1973.

Regional Groups. In respect to activity state transitions, there were significant differences among the four regions. Persistence rates in 4-year colleges tended to be highest among respondents from high schools in the Northeast and lowest in the West. Work persistence was highest in the South and lowest in the West. There were regional differences in ability and SES distributions as well as educational-occupational opportunities; these differences could explain many differences between regional transition matrices.

D. Self-Esteem, Locus of Control, and Life Goals

Based on the item sources and the analytical factor support discussed in chapter VIII, self-esteem and locus-of-control scale scores were calculated for each person from both the base-year and the first follow-up instruments. Item scores for use in analyses were summed and divided by the number of available items

(i.e., nonmissing items). The general conclusion drawn from the analyses was that there were some clearly predictable differences in self-esteem and locus-of-control measures among subgroups, especially subgroups classified according to activity and transition states. Most of these differences existed at the time of the base-year assessment and were unmodified (relative to the total population) at the time of the first follow-up.

1. Self-Esteem Shifts

Relative to the scale midpoint the base-year means showed high self-esteem and an internal stance on locus of control for the high school class of 1972. The first follow-up means indicated slight shifts: on self-esteem the mean was higher, and on locus of control it was slightly more internal.

No substantial differences in self-esteem existed among groups defined by sex, ethnicity, ability, SES, and high school curriculum. Slightly larger differences existed among the plan groups and subgroups associated with first follow-up activity and transition states. The work-plan and no-plan groups had low self-esteem. Respondents who would be looking for work over a year later, had low self-esteem during the base year and were even more deviant at the time of the first follow-up.

2. Locus-of-Control Correlates

Locus of control emerged as an important correlate of ability. The high ability group was more internal and perceived themselves as more in control of the environment than the middle or low ability groups. The low ability group was most external. There is a strong possibility that the ability differences underlie some of the other locus-of-control differences (e.g., SES and high school program). However, the ethnic group differences appeared to be independent of the ability-related, locus-of-control differences; whites were the most internal.

Large differences in locus of control existed among plan groups and base-year subgroups associated with transition and activity states. While some of these differences may have been related to ability and ethnic groups, others seemed basically independent of ability. Persons high in internality during the base year were most likely to be involved in study or study-plus-work activities at the time of the first follow-up, and persons external on locus of control were more likely to be engaged in work only or to be looking for work. The looking-for-work group was quite external on locus of control during the base year, and was even more external during the first follow-up.

3. Life Goal Orientation

Three scales were derived from base-year items measuring the importance of life goals: work orientation, community orientation, and family orientation. Appropriate item scores were summed and divided by the number of items available for both the base-year and first follow-up instruments. The resulting scale scores used in the analysis yielded the findings discussed below.

Base Year. The base-year data showed associations between the background demographic variables and the work, community, and family goal orientations. Work orientation differences were small and occurred where expected: males were more work oriented than females; particularly low endorsement of work goals occurred for homemakers (planned or current activity). "Others" (plans and activities) were generally the lowest on work orientation. Equally large differences occurred for ability (lower ability gave higher work orientation ratings) and ethnicity (blacks and Hispanics were more work oriented than whites).

Community orientation differences were large among the ethnic subgroups. Blacks were the most community oriented; whites, the least. Small differences occurred among SES and ability groups. Neither of the high nor low ability white groups was particularly community oriented. While the lower SES group's high community orientation could have been due partly to ethnic composition, a supplementary analysis of abilities in ethnic subgroups indicated that high ability blacks, compared to low ability blacks, were not highly community oriented.

Family orientation differences were generally quite small. Hispanics and homemakers had the greatest family orientations. The military and "other" plan and activity groups showed the least. A potential problem for the latter groups is that the family orientation scale leans heavily on staying in the same community--an activity quite antithetical to military or travel plans.

First Follow-Up. The means for the total first follow-up sample (and base-year respondents of the first follow-up) differed slightly from the base-year means. Goal orientations for work and community were lower, and family orientations were slightly higher. Subgroup orderings and differences were relatively unchanged, particularly for ability, sex, SES, high school program, ethnic group, and the transition groups with base-year study plans.

E. Financial Aid Distribution and Impact

Financial aid variables in the first follow-up included the sources and types of student aid planned for in the spring of 1972 and/or received during the 1972-73 academic year. For analysis, the programs or sources reported were categorized:

- Federal scholarships or grants
- Federal loans
- College work-study programs
- Other federal programs
- Nonfederal aid
- Savings or earnings
- Family support

For many analyses, contrasts were made between three groupings of these categories: federal aid, nonfederal aid, and aid from other sources.

1. Plans in Spring 1972

Of the 1972 high school seniors planning to continue their education beyond high school, 65 percent planned to obtain financial assistance from sources other than families, personal savings, or earnings. Substantially higher proportions planned to use nonfederal rather than federal aid. Differences in aid plans varied across student subgroups.

High School Curricula. While a higher proportion of academic students (59 percent) than vocational/technical students (49 percent) planned to receive aid from nonfederal programs, the proportions of these two groups who were planning for federal aid were essentially equivalent. Seniors in general programs were less likely than their counterparts in academic and vocational/technical programs to plan for aid other than that from federal programs.

Academic Abilities. The relationships between ability and planning for financial aid were inconsistent across aid types. High ability students were more likely than either middle or low ability students to plan for nonfederal and federal loans, but they were less likely to plan for federal scholarships or grants. Medium ability students were least likely to plan for either federal or nonfederal aid of any kind. Since nonfederal (institutionally administered) aid programs were more likely than federal programs to be geared to ability rather than SES, it may be that high ability seniors planned on financial aid based on scholastic achievement and that low ability students expected aid on the basis of financial need.

Socioeconomic Status. The relationship between SES and planning for financial aid was clearly in the expected direction. Substantially greater percentages of lower SES seniors than middle or higher SES seniors planned to use each type of financial support. The lower proportion for high SES probably reflects (particularly for federal programs) an awareness of the requirement that aid be primarily for those who are less able to pay.

Sex Groups. For sex, no consistent or significant differences emerged. Males were slightly more likely than females to plan for federal or nonfederal

aid. More females than males planned to use self-help support (i.e., loans and work-study) programs.

Racial Groups. Proportions of blacks, whites, and Hispanics planning for each type of financial aid differed. Blacks were more likely than Hispanics, who were more likely than whites, to plan for financial aid, regardless of sources and types.

Regional Groups. When students were grouped by geographic regions, no significant differences in the proportions planning for federal aid were observed. There were, however, substantial regional differences in the proportions of seniors planning for nonfederal aid. The Northeast had the highest proportion. This finding parallels, in general, regional differences in the availability of institutional aid funds.

2. Fulfillment of Plans

In general, the probability that students would fulfill their plans for specific types of financial aid (e.g., plan for and receive a federal scholarship) was quite low; the probability that they would receive some type of federal or nonfederal support was much higher (about 50 percent). Less than half (45 percent) of the high school seniors who had planned in the spring of 1972 to obtain federal or nonfederal aid for postsecondary education actually received aid during the 1972-73 academic year. More received federal than nonfederal aid (38 vs 33 percent). The probability of financial aid plan fulfillment varied with student subgroups and sources of funds.

High School Curricula. Seniors from high school academic programs were most likely to fulfill federal and/or nonfederal financial aid plans. Vocational/technical students were least likely. Academic students were just as likely to fulfill their plans for nonfederal aid as they were those for federal aid. Seniors from general and vocational/technical programs were considerably more likely to achieve fulfillment of federal rather than nonfederal aid plans.

Academic Abilities. There was a strong consistent relationship between ability level and fulfillment of financial aid plans. Regardless of aid type, the higher the seniors' ability level the more likely they were to fulfill their plans for financial support.

Socioeconomic Status. The relationship of plan fulfillment to SES was dependent on source of aid. Plans for nonfederal aid were fulfilled for about 35 percent for each SES level. On the other hand, low SES seniors were more likely than middle SES seniors, who were more likely than higher SES seniors, to receive the federal aid they expected.

Sex Groups. Females were consistently more likely than males to fulfill plans for all types of student financial aid.

Racial Groups. Whites were more likely than blacks or Hispanics to fulfill plans for nonfederal support, but less likely than these minority groups to fulfill plans for federal aid.

Regional Groups. Regional differences for federal aid were negligible; however, there were substantial differences for nonfederal aid. Students in the Northeast were most likely to fulfill nonfederal aid plans (42 percent), and students in the South were least likely (25 percent). These differences were probably due to the disporportionate availability of nonfederal funds within regions.

3. Status in 1972-73

Regardless of prior plans, the type of postsecondary school entered appeared to be an important determiner of whether or not financial assistance was received. Students attending 4-year colleges or universities were more likely to report getting both federal and nonfederal aid than students enrolled in 2-year or vocational/technical schools. Participation in financial aid programs was also strongly related to SES, family income, academic ability, and race or ethnicity.

High School Curricula. Students from high school academic programs were more likely to receive either federal or nonfederal support than students from general and vocational/technical programs.

Academic Abilities. The relationship between ability level and financial aid varied by type of aid and by type of postsecondary school. High ability students were more likely than other ability groups to receive nonfederal aid regardless of the type of school. However, for 2- and 4-year colleges lower ability and federal aid seemed to go together and may reflect the tendency to allocate federal aid on the basis of need rather than ability.

Socioeconomic Status. As expected, the proportions of individuals receiving financial aid increased as SES level decreased. Differences in aid were greatest among students attending 4-year colleges or universities. Furthermore, within ability groups, the higher a student's SES (or family income level) the less likely he was to have received financial aid.

Perhaps the most significant comparisons were based on family income. The proportions of students receiving aid decreased as family income level increased: 57 percent from families with incomes of less than $3,000 received some type of federal or nonfederal aid, but fewer than one in five from families with incomes in excess of $18,000 received such support.

Important findings: students in postsecondary education from families with incomes of $9,000 or above received nonfederal aid more often than they received federal aid; the proportions of students from family incomes below $9,000 who received federal support exceeded the proportions with nonfederal support. Thus, federal aid as contrasted to nonfederal aid was more heavily directed to students from families with incomes below $9,000. In fact, only 8 percent of aid-receiving students from families with incomes of $18,000 or above reported any federal aid, and only 1 percent of these reported receipts of federal scholarships or grants. An apparent trend was the awarding of scholarships and grants primarily on the basis of need.

The receipt of federal and nonfederal aid also varied with the type of school attended. Two-thirds of those from families with incomes of less than $3,000 who entered 4-year colleges or universities received federal aid.

Sex Groups. Females enrolled in postsecondary education were more likely than males to receive federal or nonfederal student financial support. In fact, the proportion of females receiving support exceeded the proportion of supported males in each program category except work-study and other federal programs for vocational/technical schools and 2-year institutions. Males were more likely than females to derive support from personal savings and earnings.

Racial Groups. Blacks and Hispanics were much more likely than whites in each type of school to receive each form of federal aid. Whites were more likely to receive nonfederal aid. However, findings based on controlled low and middle ability levels revealed considerably higher proportions of blacks and Hispanics than whites receiving nonfederal aid.

Regional Groups. A substantially larger proportion of students in the Northeast than in the other three geographic regions received nonfederal aid. This was not surprising, since states with strong tax bases and/or heavy concentrations of private institutions (i.e., most Northeastern states) had extensive student aid programs; many Southern states had low tax bases and either relatively weak or virtually nonexistent programs. Regional differences in federal aid were, for the most part, negligible.

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ANNOTATED LIST

OF

FIRST FOLLOW-UP

NATIONAL LONGITUDINAL STUDY REPORTS

BY

RESEARCH TRIANGLE INSTITUTE

Base-Year and First Follow-Up Data File Users Manual (Preliminary)
April 1975, 323 pages
Eleven appendixes, 279 pages
Revision by NCES, September 1975, added appendix K, 16 pages

The Users Manual is a detailed description of the merged base-year/first follow-up NLS data file. The purpose of the manual is to document the contents of the available release tapes so that interested investigators in the general research community can exploit the data effectively. The manual has five parts: Introduction, Methodology, File Preparation, Contents and Organization of the Data File, and Technical Specifications. In Part 2, Methodology, the sample design, instruments, and data collection procedures are discussed. Part 3 describes first follow-up data preparation and entry, error and missing data codes, machine editing procedures, and quality and analytic indices. The 12 appendixes are:

A. *Student's School Record Information Form, Base-Year Student Questionnaire, and First Follow-Up Questionnaire (Form B)*

B. *Critical Items in the First Follow-Up Questionnaire*

C. *List of Occupational Codes*

D.1 *List of Field of Study Codes*

D.2 *List of License, Certificate, or Diploma Codes for First Follow-Up Question 43B*

E. *Routing Codes and Routing Patterns*

F. *NLS Release Tape Variable and Response Lists*

G. *List of Items Deleted from the SRIF, Base-Year, and First Follow-Up Instruments*

H. *Imputation of Grade Point Averages and Conversion of Grading System*

I. *List of Region Codes and States within Regions*

J. *Frequency Distributions for Base-Year and First Follow-Up Questionnaire Items*

K. *Specification and Use of Planning and Activity State Variables in the Base-Year and First Follow-Up Data File*

Bias Resulting from School Nonresponse: Methodology and Findings
February 1976, 78 pages

Approximately 20 percent of the initial sample schools did not participate in the NLS base-year survey. This school nonresponse rate was twice the student nonresponse rate in the participating schools. This paper presents methodology and detailed results of an investigation of the possible bias of school nonresponse in base-year estimates. Two methodologies developed expressly for this analysis and the basic statistics resulting from the method implemented are presented.

Calculation of Nonresponse-Adjusted Student Weights for Respondents to the NLS Base-Year and First Follow-Up Surveys
October 1975, 25 pages

The Sampling Department of the Statistics Research Division of RTI issued this technical report dealing with weighting adjustments for student nonresponse. The report traces the activities which led to the development of the adjusted weights--beginning with the basic NLS design, the base-year weight calculations, and the resurvey procedures. Next, the report describes the first follow-up weight calculations (including unadjusted student weights), nonresponse adjustment methodology, classifier variables, weighting classes, and the adjusted weights calculations. The last pages contain tables showing the nonresponse adjustment factors for each weighting class as well as the total number of students, total number of responding students, sum of all unadjusted weights, and the sum of the respondent unadjusted weights for each weighting class.

Composite Score Analysis: Ability Index, SES Index, Some Psychological and Educational Construct Scales
August 1974, 20 pages
Four appendixes, 31 pages

The first set of NLS data was analyzed to derive composite scores to be used in subsequent analyses. The composites include a general ability measure, a socioeconomic status (SES) index, and factor scores from factor analyses of sets of questionnaire items measuring goals, attitudes, and other psychological attributes. The derived composites can be used to help define subpopulations for descriptive statistics and as independent or control variables in some analytic studies. Procedures and results of the composite score analyses are presented in the three sections of the document. Four appendixes contain Duncan SEI scores for FFU Q.93, group means for substitution of missing data, principal components factor matrixes, analysis means, and standard deviations used for standardization.

Conceptual Model of the National Longitudinal Study
December 1973, 4 pages
Attachment, 11 pages

The Analytic Review series which provided input to NLS included a General Educational Development Model developed by James Trent et al. (UCLA, 1972). The model was modified by RTI to fill the specific needs of NLS, and the relationship between the two models was presented in the conceptual model. The attachment indicates the variables from the base-year and first follow-up instruments used in the NLS conceptual model.

Descriptive Analytical Reports

1. *A Capsule Description of the High School Class of 1972: The First Follow-Up Survey Data*
   May 1975, 42 pages; August 1975, 18 pages
   Two appendixes, 8 pages

This report is the first of four designed to present basic descriptive analyses of the NLS data. The purpose is to give summative information

about the young adults' work and education activities; self-perceptions and future plans; and relevancy of high school job training and counseling service to postsecondary school activities, as measured one and one-half years after leaving high school. Accordingly, the topics are current activity status, marriage and family planning, mobility, aspirations and plans, postsecondary educational experience, work experience, and relevancy of high school job training and counseling service. Data are summarized for major subgroups defined by sex, race, ability, socioeconomic status, high school program, and region. The last pages present highlights abstracted from the report. Two appendixes discuss the specification of classification variables and the reliability of estimates. In August 1975, a short version (18 pages) of the report was developed. It concentrates on participation in postsecondary education and in jobs; these two issues seemed to have the most pervasive impacts on the lives of young adults.

2. *National Longitudinal Study of the High School Class of 1972: Planning and Activity States Analysis*
   September 1975, 46 pages
   Three appendixes, 28 pages

Second of four analysis reports, this one presents basic descriptive analyses of the planning and activity states of the NLS sample members. The central theme deals with the following questions: (1) What were the young people's plans shortly before graduation from high school? (2) What were they doing shortly after graduation? (3) How many of them fulfilled their plans? (4) What were they doing one and one-half years after graduation? (5) How many changed from one activity to another? Findings from several descriptive longitudinal and cross-sectional analyses of base-year and first follow-up data give insights into these questions. Three appendixes cover specification and use of planning and activity state variables, sampling variability, and plans and activities for respondents excluded from planning state analyses.

3. *National Longitudinal Study of the High School Class of 1972: Group Profiles on Self-Esteem, Locus of Control, and Life Goals*
   January 1976, 62 pages
   Two appendixes, 17 pages

The purpose of this third report (in a series of four) is to use Base-Year and First Follow-Up Questionnaire data on self-esteem, locus of control, and work-, community-, and family-related goal activities to generate profiles for describing subpopulations defined by career patterns and demographic and personal characteristics. The following questions are addressed: (1) What base-year differences exist among subgroups and how are they related to school experience, career plans and subsequent activities? (2) What subgroup differences exist at the time of the first follow-up, particularly among groups differing in post-high-school activities and transition state sequences? (3) How are the base-year to first follow-up changes in self-esteem, locus of control, and goal orientations related to changes in activities, transition sequences, and background variables? The answers to the questions are used for hypothesizing possible causal roles of the psychological attributes and for describing the psychological status differences related to background and demographic variables and to transition sequences and activities. There are four major sections in this report. The data collection section describes the sample, the survey

instruments, the procedures, and the data processing. The measurement specifications section specifies the characteristics of the items and composite variables used as the psychological construct measures. Next, various group profiles are described and contrasted. Finally, there is a summary of the important findings and their implications. The appendixes contain means, standard deviations, subgroup sample sizes, and generalized standard errors.

4. *National Longitudinal Study of the High School Class of 1972: Preliminary Analysis of Student Financial Aid*
September 1975, 52 pages
Three appendixes, 15 pages

The purpose of this fourth analysis report is to provide descriptive statistics on the current patterns of student financial support for postsecondary attainment and to examine the impact of student participation in federal and nonfederal financial aid programs on educational persistence. Regarding the former, results include the percentages (national estimates) of students and student subgroups who (1) planned for various kinds of financial aid as high school seniors, (2) received aid from various sources in their first postsecondary year, and (3) fulfilled their specific financial aid plans. The three appendixes contain supplementary tables which cross-tabulate aid by family income, reliability of the estimates, and matrices of student financial aid plan fulfillment.

Effects of Stratification, Clustering, and Unequal Weighting on the Variances of NLS Statistics
February 1975, 30 pages

In this report, average design effects for statistics estimated from the base-year data are presented. Attempts to partition the effects into those due to stratification, clustering, and unequal weighting are discussed. The expected increases in subpopulation sample sizes due to oversampling are calculated and compared with the actual increases observed in the base-year survey. The effects on variances of oversampling and other factors which lead to unequal weighting are approximated and the optimum oversampling rates for several subpopulations are estimated. Several stratification variables are ranked from most to least effective in reducing the variances of survey estimates.

Efficiency Study of the Change Variables from the First Follow-Up of the NLS Sample Design
February 1976, 27 pages
One appendix, 8 pages

This design efficiency study seeks to determine the "optimum" number of schools and seniors per school to select in a two-stage design, so as to minimize the variance of new cohort statistics subject to likely budget constraints. The variables used in this analysis were defined as changes (or lack of changes) in the individuals' responses from the base-year survey

to the first follow-up survey. Variance components were estimated for each of 14 change variables, and the efficiency of each of nine equal-cost sample designs was estimated for each of 238 statistics. The "optimum" design for each type of statistic was then chosen as the design with the highest average efficiency. This report documents the methods as well as the results of this efficiency study.

Efficiency Study of NLS Base-Year Design
November 1974, 33 pages

Finding the optimal design involved a search for the numbers of sample schools and students that would maximize the variance at a given cost. The efficiency study of the NLS base-year design resulted in the selection of 21 variables, the estimation of 17 sets of variance components for each variable, and computation of the efficiency of these 357 statistics for each of nine designs of approximately equal cost to yield an optimal design for all statistics. The report of this study gives a detailed account of these activities and their results. While parts of the report are highly technical, it is written so that most anyone interested may follow the general procedures and comprehend the results.

Imputation Procedures for NLS Data Base
January 1975, 6 pages

This paper documents the imputation procedures used for the first follow-up data. The procedures involved three phases: (1) direct logical inferences (e.g., type of school from its name and address; (2) indirect logical inferences (e.g., impute studying full-time for those who are studying and not working); (3) statistical imputations (e.g., impute a value in accordance with the probability distribution of the values for given cells defined by the basic classification variables and relevant activity state information).

The National Longitudinal Study: Design and Preliminary Results
January 1975, 23 pages

This paper was presented by George H. Dunteman and John P. Bailey, Jr., at the January 1975 annual meeting of the American Association for the Advancement of Science in New York City. The authors attempted to summarize briefly an overview of NLS--from inception, through preliminary analyses, to future plans. Topics included a background of the study and descriptions of the sample instruments, data collection procedures, data processing, important variable classes, and classification variables. Also discussed briefly were three sets of selected preliminary findings based upon simple unweighted tabulations available at that time: (1) fall 1973 status; (2) spring 1972 plans versus October 1972 activities; and (3) October 1972 activities versus October 1973 activities. The final section of the paper discusses implications and future plans using a simple path analysis model involving financial aid as an example of how the impact of a factor in the activities of the 1972 high school seniors can be evaluated.

The National Longitudinal Study of the High School Class of 1972
April 1975, 82 pages

Several presentations dealing with NLS were given at the 1975 symposium of the American Education Research Association in Washington, D.C., by RTI, NCES, and OE staff. RTI compiled into one document these presentations:

Objectives, Design, and History of the Study
J. A. Davis, RTI, and Elmer Collins, NCES

Philosophy of the Design and Development of the Questionnaire
Kenneth A. Tabler, NCES; Robert Berls, Office of Planning, Budgeting, and Evaluation; and Leroy Cornelson, Bureau of Occupational and Adult Education

Survey Procedures to Maximize Participation
Elmer Collins, NCES, and J. P. Bailey, Jr., RTI

Selected Results from the Base-Year and the First Follow-Up Surveys
Samuel S. Peng and George H. Dunteman, RTI; William B. Fetters, NCES

A Description of the Merged Base-Year/First Follow-Up Data File
Jay R. Levinsohn and John A. Riccobono, RTI

The Vocational Re-Evaluation of the National Longitudinal Study of the High School Class of 1972 - Base-Year
Emmett L. Fleming, Jr., and Robert Maroney, Office of Planning, Budgeting, and Evaluation; Mary L. Straser, Bureau of Occupational and Adult Education

National Longitudinal Study of the High School Class of 1972: A Summary of the Merged Findings from Analyses by RTI of the First Follow-Up and Preceding Data
September 1975, 24 pages

For those not familiar with NLS, this summary provides a useful overview. The first section describes the base-year survey and subsequent waves and the NLS goals and purposes. The second section summarizes findings from data analyses of the first follow-up and base year completed prior to September 1975.

NLS Analysis Working Paper Number One
January 1974, 25 pages

The purpose of the NLS analysis working papers was to solicit reactions from planning conference participants and OE personnel on the data analysis plans. The first paper focuses on variable definitions to be used in both the descriptive and analytic studies and on basic descriptive analyses to be generated from the file of base-year and first follow-up data. Defined are the independent and subpopulation classification variables. Discussed are three preliminary analytical models focused on policy issues as well as several topics related to variables construction and basic descriptive analyses.

NLS Analysis Working Paper Number Two
June 1974, 20 pages
Appendix, 12 pages

In April of 1974, a two-day meeting was held at RTI to discuss NLS analysis plans. This paper summarizes the ideas discussed in that meeting and ways to extend them. Emphasis was on specifying the descriptive analyses to be conducted later that year. Suggestions and plans presented in the paper cover the following topics: factor analysis of the Base-Year Questionnaire, subpopulation classification factors, codebooks, descriptive tables, basic descriptive flow analysis, additional transition analyses, descriptive profiles of subgroups, predictive and causal analysis, and the critical data base. A summary of the base-year principal components and factor analysis is attached as appendix A.

Proceedings of Planning Conferences

1. *Digest of Proceedings of the First Planning Conference*
November 1973, 30 pages

The First Planning Conference for the National Longitudinal Study of the High School Class of 1972 was held at the Burlington Hotel in Washington, D.C., over the three-day period, 4-6 November 1973. The purposes were to discuss priorities, to advise about plans for the overall conduct of the study, and to discuss the research priorities and plans for a study of the Class of 1977. This document describes the proceedings of the four sessions: Overview, Base-Year Study; Research Design for the First Follow-up Analysis; Design of the Second Follow-Up; and Design of the 1977 Cohort Study.

2. *Record of Proceedings of the Second Planning Conference*
April 1974, 107 pages

The Second Planning Conference for the National Longitudinal Study of the High School Class of 1972 was held at the Burlington Hotel in Washington, D.C., over the two-day period, 23-23 April 1974. Its purpose was to discuss progress, priorities, and NLS goals as well as to advise about plans for the overall conduct of the study. The report, a transcription of a recording of the meetings, gives a detailed account of the four sessions: Review of Progress, Implications of NLS in Issues Facing the Public Schools and in Career Education Issues, Issues Facing Public Systems and Private Institutions of Higher Education, and Priorities for Data Analysis.

Reliability of Retrospective Data
March 1976, 78 pages

Of the 1200 primary sample schools in the original NLS sample design, 231 did not participate in the base-year survey. The purpose of this study was to assess the reliability of base-year data obtained retrospectively during the first follow-up of students from nonparticipating schools. Limited Base-Year Student Questionnaire data were obtained during the first follow-up from a sample of the 1972 senior students from the participating

schools. The study documented in this report is a question-by-question assessment of the reliability of the data obtained from these students. The resurvey procedure involved requesting information (i.e., the 15 additional items in the First Follow-Up Questionnaire Form B) from 500 base-year respondents and comparing the responses to the corresponding base-year items. The results and procedures are discussed.

Report on the Data Collection Activities of the First Follow-Up
February 1974, 25 pages
Four attachments, 125 pages

The NLS first follow-up data collection activities involved the mailout of a newsletter to all members of the sample, tracing activities for each individual whose newsletter was returned by the post office as undeliverable, questionnaire mailouts, mailout of reminder/thank-you post cards, and mailgram and telephone follow-up contacts with nonrespondents. In addition, a special study was conducted with a subset of the sample members to compare the effects of air mail and certified mail questionnaires, post cards, mailgrams, and telephone calls on the response rate. The final steps in data collection were the editing and coding of all returned questionnaires. This report contains descriptions and tabular summaries of these varied activities. The four attachments are copies of the mailout items, the telephone tracing manual and related materials, an alternative plan for follow-up procedures, and a report on a special telephone survey of nonrespondents.

Supporting Statement for the Survey Instrumentation of the First Follow-Up Survey for the High School Class of 1972
August 1973, 23 pages
Two attachments, 37 pages

A supporting statement accompanied the First Follow-Up Questionnaire when it was submitted for government clearance. The first part of the statement gives the background, uses, and justification of the survey; the largest part describes the plans for the first follow-up (survey procedures, reports and tabulations, schedule); the last part discusses consultations and meetings leading to the development of the First Follow-Up Questionnaire and concerns about respondent burden, sensitivity, and confidentiality. Attachment A contains the results of the Census Bureau pretest and copies of the instruments used. Attachment B is a copy of the newsletter sent to respondents prior to the first follow-up.

Tabular Results of the First Follow-Up Questionnaire
July 1975 (five volumes), 727 pages

The tabular results (codebook) of the First Follow-Up Questionnaire are presented for each item in the questionnaire. Results are given for the total sample as well as for subpopulations defined by sex, race, ability, SES, high school program, region; sex by race, sex by ability, sex by SES, sex by high school program, sex by region; race by ability, race by SES,

race by high school program, and race by region. Actual and weighted subpopulation sizes are presented along with the percentage distributions of responses for each item for these groups.

Variance Components for NLS: Partitioning the Design Effect
January 1975, 22 pages

When the precision of sample statistics from a complex survey design like that of NLS is examined, it is useful to establish a set of standards. One such standard is the precision that would have been attained had an equal sized simple random sample of respondents been selected. Leslie Kish introduced Design Effect (DEFF)--the actual variance of a sample statistic divided by the variance appropriate for an equal sized simple random sample. The DEFF measures the combined effects of all the selection and estimation procedures on the precision of sample statistics. The purpose of this report is to demonstrate a variance components methodology for partitioning the overall design effect (D) for a ratio mean into stratification (S), unequal weighting (W), and clustering (C) effects, so that D = WSC.

Appendix B

FIRST FOLLOW-UP FIELD TEST QUESTIONNAIRE

FOR THE U.S. CENSUS BUREAU

SURVEY OF THE HIGH SCHOOL CLASS OF 1971

O.M.B. No. 41-S73004; Approval Expires June 30, 1973

FORM LHS-1X
(3-15-73)

U.S. DEPARTMENT OF COMMERCE
SOCIAL AND ECONOMIC STATISTICS ADMINISTRATION
BUREAU OF THE CENSUS
ACTING AS COLLECTING AGENT FOR
THE DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

SURVEY OF HIGH SCHOOL CLASS OF 1971

Dear Friend:

Last year, you participated in the Survey of the High School Class of 1971 conducted by the Office of Education, U.S. Department of Health, Education, and Welfare. This year, the Census Bureau has been asked to conduct a followup survey to obtain additional information on the educational goals and activities of people who were contacted last year. The results of this study will contribute to planning for the Nation's future educational needs and to help develop programs to meet changing needs.

The information you provide in this voluntary survey will be treated as confidential by the Bureau of the Census and the Office of Education. It will be used for statistical purposes only. Since each person in the sample for this survey represents thousands of others, the cooperation of each is very important.

Please complete the questionnaire and return it to us within 3 days in the enclosed preaddressed envelope.

We are grateful for your past help and look forward to your continued cooperation.

Sincerely,

Joseph R. Wright Jr.

JOSEPH R. WRIGHT, JR.
Acting Director
Bureau of the Census

Enclosure

NOTICE – All information which would permit identification of the individual will be held in strict confidence, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to others for any purposes.

GENERAL INSTRUCTIONS

1. Please read each question completely before answering.
2. Answer all questions except when instructed to SKIP. Although the questionnaire may appear to be long, only portions of it will be applicable to you.
3. Please be sure to complete the last page of the questionnaire before returning it.

RETURN TO: Bureau of the Census
Washington, D.C. 20233

(Please correct any error in name and address including ZIP code)

NLS LIBRARY

Section A – GENERAL INFORMATION

1. When did you leave or graduate from high school?

Graduated in _____ (Month) _____ (Year)

Left high school without graduating but have since passed a high school equivalency test, for example, the GED . . . . . 1 ☐

Left high school without graduating . . . . . 2 ☐ } Left in _____ (Month) _____ (Year)

Still in high school . . . . . 3 ☐ – Skip to section E, page 24

2. Did you have a job lined up when you left high school?

1 ☐ Yes

2 ☐ No

3. At the present time, are you – *(Mark all categories which apply to you)*

1 ☐ **Working at a civilian job, working on a farm, or working in your own business or profession?**

2 ☐ **Temporarily absent from a job or business for reasons other than layoff?**

3 ☐ **Looking for work or on layoff from a job?**

4 ☐ **In the Armed Forces?**

5 ☐ **Going to school?**

6 ☐ **Keeping house?**

7 ☐ **Permanently unable to work?**

8 ☐ Other *(Please describe)* _____

4. What is your current marital status?

1 ☐ Single

2 ☐ Married

3 ☐ Separated, divorced, or widowed

5. Looking back, how helpful to you were your high school's formal counseling or guidance services in each of the following? *(Mark one box on each line)*

	Very helpful	Helpful	Not helpful	Do not know or counseling service not available
Helping adjust to the school	1 ☐	2 ☐	3 ☐	4 ☐
Helping in reading and study skills	1 ☐	2 ☐	3 ☐	4 ☐
Helping with trouble in classwork	1 ☐	2 ☐	3 ☐	4 ☐
Helping solve personal problems	1 ☐	2 ☐	3 ☐	4 ☐
Helping solve financial problems	1 ☐	2 ☐	3 ☐	4 ☐
Interpreting test results	1 ☐	2 ☐	3 ☐	4 ☐
Helping select school courses	1 ☐	2 ☐	3 ☐	4 ☐
Helping choose appropriate occupations and careers	1 ☐	2 ☐	3 ☐	4 ☐
Helping find jobs or apprenticeships	1 ☐	2 ☐	3 ☐	4 ☐
Advising about further education	1 ☐	2 ☐	3 ☐	4 ☐

Section A – GENERAL INFORMATION – Continued

6. **How helpful to you were the following persons or sources of information in making your educational and vocational plans since graduation from high school?** *(Mark one box on each line)*

	Very helpful	Helpful	Not helpful	Does not apply
PERSONS OR ORGANIZATIONS				
The colleges or schools I have applied to	1 ☐	2 ☐	3 ☐	4 ☐
A military recruiter	1 ☐	2 ☐	3 ☐	4 ☐
Friends or relatives	1 ☐	2 ☐	3 ☐	4 ☐
Parents	1 ☐	2 ☐	3 ☐	4 ☐
The college or school I enrolled in	1 ☐	2 ☐	3 ☐	4 ☐
Friends your own age	1 ☐	2 ☐	3 ☐	4 ☐
Professionals in the field I want to go into	1 ☐	2 ☐	3 ☐	4 ☐
State employment service	1 ☐	2 ☐	3 ☐	4 ☐
Visit from someone recruiting for a school	1 ☐	2 ☐	3 ☐	4 ☐
Student financial aid officer at a school	1 ☐	2 ☐	3 ☐	4 ☐
Other *(Please describe)* _____	1 ☐	2 ☐	3 ☐	4 ☐
SOURCES OF INFORMATION				
Advertisements	1 ☐	2 ☐	3 ☐	4 ☐
Directories or guides to education beyond high school	1 ☐	2 ☐	3 ☐	4 ☐
Publications of national test programs such as the College Board, American College testing programs	1 ☐	2 ☐	3 ☐	4 ☐
Other *(Please describe)* _____	1 ☐	2 ☐	3 ☐	4 ☐

7. **Have your parents or guardians encouraged you in the following areas after you left high school?** *(Mark one box on each line)*

	Encouraged me	Discouraged me	Neither
Getting a job right after high school	1 ☐	2 ☐	3 ☐
Getting vocational or technical training	1 ☐	2 ☐	3 ☐
Getting a college education	1 ☐	2 ☐	3 ☐
Getting high grades in school	1 ☐	2 ☐	3 ☐
Entering the military	1 ☐	2 ☐	3 ☐
Being prepared for employment	1 ☐	2 ☐	3 ☐

Section A – GENERAL INFORMATION – Continued

8. Where are you living now? *(Mark only one)*

1 ☐ At home with my parents
2 ☐ In the home of relatives other than parents
3 ☐ In an apartment or house by myself
4 ☐ In an apartment or house with husband or wife
5 ☐ In an apartment or house with other persons not related to me
6 ☐ In a dormitory operated by the college or school
7 ☐ In a fraternity or sorority house
8 ☐ Other *(Specify)* 7 _____

9a. How many persons are dependent upon you for support? *(Mark one box on each line)*

	None	One	Two or more
Husband or wife	0 ☐	1 ☐	2 ☐
Sons or daughters	0 ☐	1 ☐	2 ☐
Brothers or sisters	0 ☐	1 ☐	2 ☐
Parents	0 ☐	1 ☐	2 ☐
Other	0 ☐	1 ☐	2 ☐

b. About how much per year do you provide to them?

$ _____

10. What is your best estimate of your yearly income for 1972 before taxes? If you are married, please estimate your husband's or wife's income in the second space provided. Include wages and salaries, net income from business or farm, and any other money income received.

$ _____ (Your income) $ _____ (Your husband's or wife's income)

11. Not counting yourself, how many persons are dependent upon your parent(s) for more than one half of their financial support? *(Mark one box on each line)*

	None	One	Two	Three	Four or more
Brothers or sisters	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐
Other persons	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐

12. Of these persons, how many are enrolled in a university, college, or post high school vocational, trade, or business school? *(Mark one box on each line)*

	None	One	Two	Three	Four or more
College or university	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐
Vocational, trade, or business school	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐

Section A – GENERAL INFORMATION – Continued

13. **Here are some reasons others have given for NOT continuing their education during the year after leaving high school. Which of these reasons apply to you?** *(Mark all that apply)* If you continued your education after leaving high school, mark here ☐ and continue with question 14.

- 01 ☐ Wanted to go to work immediately
- 02 ☐ Needed money to support my family
- 03 ☐ Needed to earn money before getting further schooling
- 04 ☐ Did not get the information I needed in time to apply
- 05 ☐ Low high school grades or low scores on college admission tests
- 06 ☐ Did not have high school credits required for college entrance
- 07 ☐ Applied but was not accepted
- 08 ☐ No school within commuting distance
- 09 ☐ Discouraged from continuing by a teacher or counselor
- 10 ☐ Discouraged from continuing by parents
- 11 ☐ Waiting to enter military service
- 12 ☐ Future plans do not require further schooling
- 13 ☐ Wanted to take a break, may attend school later
- 14 ☐ Planned to be married
- 15 ☐ School is not for me
- 16 ☐ Other *(Please describe)* _____

14. **How much education would you like to get?**

- Complete high school only . . . 01 ☐
- Vocational, trade, or business school . . . . . 02 ☐ 6 months; 03 ☐ 1 year; 04 ☐ 2 years; 05 ☐ More than 2 years
- College . . . . . 06 ☐ 2 years (complete junior college); 07 ☐ 4 years (graduate from four-year college); 08 ☐ 6 years (master's degree or equivalent); 09 ☐ 7+ years (Ph.D. or professional degree)
- Other level *(Specify)* . . . . . 10 ☐ _____
- Undecided . . . . . 11 ☐

Section A – GENERAL INFORMATION – Continued

15. **As things stand now, how much education do you think you will actually get?**

Complete high school only . . . 01 ☐

Vocational, trade, or business school . . . . . 02 ☐ 6 months; 03 ☐ 1 year; 04 ☐ 2 years; 05 ☐ More than 2 years

College . . . . . 06 ☐ 2 years (complete junior college); 07 ☐ 4 years (graduate from four-year college); 08 ☐ 6 years (master's degree or equivalent); 09 ☐ 7+ years (Ph. D. or professional degree)

Other level *(Specify)* . . . . . 10 ☐ _____

16. **Which of the following activities do you expect to be doing during 1973?** *(Mark all that apply)*

WORK

01 ☐ Working for pay at a permanent full-time job

02 ☐ Working for pay at a temporary full-time job

03 ☐ Working for pay at a part-time job

04 ☐ Working as an apprentice or in an on-the-job training program

STUDY

05 ☐ Taking vocational or technical courses in a specialized school (e.g., trade, business, cosmetology, nursing, correspondence) full time or part time

06 ☐ Taking vocational or technical courses at a junior or community college, full time or part time

07 ☐ Taking academic courses at a junior or community college, full time or part time

08 ☐ Attending a four-year college or university, full time or part time

OTHER

09 ☐ Looking for a job

10 ☐ Serving in the regular military service (or service academy)

11 ☐ Being a full-time homemaker

12 ☐ Traveling, taking a break

13 ☐ Other *(Please describe)* _____

Section A – GENERAL INFORMATION – Continued

17. What kind of work would you like to be doing when you are 30 years old?
(Enter type of job or mark appropriate box)

_____

Not working, but –

1 ☐ Married, keeping house, or raising a family

2 ☐ Going to school

18. How do you feel about each of the following statements?
(Mark one box on each line)

	Strongly agree	Agree	Disagree	Strongly disagree
I am able to do things as well as most other people	1 ☐	2 ☐	3 ☐	4 ☐
All in all, I am inclined to feel that I am a failure	1 ☐	2 ☐	3 ☐	4 ☐
I feel that I have a number of good qualities	1 ☐	2 ☐	3 ☐	4 ☐
I feel I do not have much to be proud of	1 ☐	2 ☐	3 ☐	4 ☐
I take a positive attitude toward myself	1 ☐	2 ☐	3 ☐	4 ☐
I wish I could have more respect for myself	1 ☐	2 ☐	3 ☐	4 ☐
On the whole, I am satisfied with myself	1 ☐	2 ☐	3 ☐	4 ☐
I certainly feel useless at times	1 ☐	2 ☐	3 ☐	4 ☐
I feel that I am a person of worth, at least on an equal plane with others	1 ☐	2 ☐	3 ☐	4 ☐
At times I think I am no good at all	1 ☐	2 ☐	3 ☐	4 ☐

Section A – GENERAL INFORMATION – Continued

19. **Did you apply for admission to any college or other post-secondary school while in high school or since that time?**

1 ☐ No – *Skip to section B, page 9*

2 ☐ Yes – *Go to question 20*

20. **What are the names and addresses of the schools to which you applied?**

FIRST CHOICE	Name	
	Address	
SECOND CHOICE	Name	
	Address	
THIRD CHOICE	Name	
	Address	

21. **Did you apply for financial aid at any of these schools?**

1 ☐ No – *Skip to section B, page 9*

2 ☐ Yes – *Go to question 22*

22. **What were the approximate values of any scholarships, loans, and/or promised jobs you were offered by each institution for the first academic year?** *(If none, enter "None")*

	Scholarships	Loans	Promised jobs
FIRST CHOICE	$	$	$
SECOND CHOICE	$	$	$
THIRD CHOICE	$	$	$

Section B – EDUCATION AND TRAINING PROGRAMS

23. **Since leaving high school, have you ever been enrolled in any education or training programs (other than on-the-job training or apprenticeship programs)?**

1 ☐ No – *Skip to section C, page 17*

2 ☐ Yes – *Go to question 24*

24. **The following statements describe some reasons people have for continuing their education. Please indicate how important you think each reason is for yourself.** *(Mark one box on each line)*

	Very important	Important	Not important
To make new friends and have a good time	1 ☐	2 ☐	3 ☐
To improve ability to think and reason	1 ☐	2 ☐	3 ☐
To broaden intellectual interests and understanding of the world	1 ☐	2 ☐	3 ☐
To increase appreciation of art, music, literature and other cultural expressions	1 ☐	2 ☐	3 ☐
To discover job or career interests	1 ☐	2 ☐	3 ☐
To get skills, knowledge, and experience that will be useful on a job	1 ☐	2 ☐	3 ☐
To meet the requirements necessary to enter a job or career	1 ☐	2 ☐	3 ☐
To increase effectiveness in interpersonal relationships	1 ☐	2 ☐	3 ☐
To learn how to be an effective leader	1 ☐	2 ☐	3 ☐
To become more capable and interesting socially	1 ☐	2 ☐	3 ☐
To learn how to deal with political or social injustice	1 ☐	2 ☐	3 ☐
To provide greater job-security	1 ☐	2 ☐	3 ☐
To develop more personal independence and self-reliance	1 ☐	2 ☐	3 ☐
To increase earning capabilities	1 ☐	2 ☐	3 ☐
To find a cause or causes to really believe in	1 ☐	2 ☐	3 ☐
To please parents	1 ☐	2 ☐	3 ☐
To find a husband or wife	1 ☐	2 ☐	3 ☐

25. **When did you first enroll in an education program after leaving high school?**

_____ (Month) _____ (Year)

Section B – EDUCATION AND TRAINING PROGRAMS – Continued

26. **What is your present status as a student?** *(Mark only one)*

1 ☐ Full-time student

2 ☐ Part-time student

3 ☐ Not attending at the present time

27a. **What type of school do you (did you last) attend?** *(Mark only one)*

1 ☐ Vocational, trade, or business school

2 ☐ Junior or community college (two-year)

3 ☐ Four-year college or university

4 ☐ Other *(Please describe)* _____

b. **Did you complete that program?**

1 ☐ No – *Skip to question 27d*

2 ☐ Yes – *Go to question 27c*

c. **How long was the program?**

_____ Months

d. **Is the school you attend (last attended) public or private?**

1 ☐ Public

2 ☐ Private

e. **Please PRINT the exact name and location of the school you are presently attending (or most recently attended).**

School	
City	State

28. **What type of courses have you taken?** *(Mark as many as apply)*

1 ☐ Courses leading to a technical, vocational or business school certificate or diploma

2 ☐ Courses leading to a two-year vocational degree

3 ☐ Courses leading to a two-year academic degree

4 ☐ Courses leading to a four or five-year college degree

5 ☐ Courses to prepare for college degree credit work

6 ☐ Noncredit courses

Section B – EDUCATION AND TRAINING PROGRAMS – Continued

29a. **Since leaving high school, have you withdrawn from a school prior to completing the course of study or program in which you were enrolled?**

1 ☐ No – *Skip to question 30a*
2 ☐ Yes – *Go to question 29b*

b. **What were your reasons for withdrawing?** *(Mark as many as apply)*

01 ☐ Became ill
02 ☐ Had financial difficulty
03 ☐ Family emergency
04 ☐ Was offered a good job
05 ☐ Got married
06 ☐ School work was boring
07 ☐ Had to work too hard
08 ☐ Lacked ability for the courses
09 ☐ Was afraid I was going to fail
10 ☐ Failed
11 ☐ Did not enjoy the social life
12 ☐ Became homesick
13 ☐ Other *(Please describe)* _____

30a. **Have you transferred to a different school from the one you first entered after leaving high school?**

1 ☐ No – *Skip to question 31*
2 ☐ Yes – *Go to question 30b*

b. **What were your reasons for transferring ?** *(Mark as many as apply)*

01 ☐ My interest changed, and my former school did not offer the course of study I wanted
02 ☐ Wished to attend a less expensive school
03 ☐ My grades were too low to continue at the former school
04 ☐ Wanted to be at a smaller school
05 ☐ Wanted to be at a larger, more diverse school
06 ☐ Wanted to attend school closer to home
07 ☐ Wanted to attend a school further away from home
08 ☐ Wanted to attend what I consider a better school
09 ☐ Wanted to attend the same school as my friend(s)
10 ☐ Personal reasons
11 ☐ Other *(Please describe)* _____

c. **Please print the name and location of the school you FIRST attended after leaving high school.**

School	
City	State

d. **Which of the following types describe that school?** *(Mark only one)*

1 ☐ Vocational, trade or business school
2 ☐ Junior or community college (two-year)
3 ☐ Four-year college or university
4 ☐ Other *(Please describe)* _____

e. **Is this school public or private?**

1 ☐ Public
2 ☐ Private

Section B – EDUCATION AND TRAINING PROGRAMS – Continued

31. **How satisfied have you been with each of the following aspects of your present (most recent) educational program?** *(Mark one box on each line)*

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
Kinds of courses offered	1 ☐	2 ☐	3 ☐	4 ☐
Quality of teaching	1 ☐	2 ☐	3 ☐	4 ☐
Size of classes	1 ☐	2 ☐	3 ☐	4 ☐
Faculty interest in students	1 ☐	2 ☐	3 ☐	4 ☐
Up-to-date equipment	1 ☐	2 ☐	3 ☐	4 ☐
Library resources	1 ☐	2 ☐	3 ☐	4 ☐
Study facilities	1 ☐	2 ☐	3 ☐	4 ☐
Extra-curricular activities	1 ☐	2 ☐	3 ☐	4 ☐
Recreational facilities	1 ☐	2 ☐	3 ☐	4 ☐
Providing opportunities to make friends	1 ☐	2 ☐	3 ☐	4 ☐
Your performance so far	1 ☐	2 ☐	3 ☐	4 ☐
Discovery of new interest, abilities	1 ☐	2 ☐	3 ☐	4 ☐
Tutoring or other assistance with learning difficulties or missed work	1 ☐	2 ☐	3 ☐	4 ☐
Counselor help with personal problems	1 ☐	2 ☐	3 ☐	4 ☐
Assistance from teachers and counselors in making educational and vocational plans	1 ☐	2 ☐	3 ☐	4 ☐
Handling of student problems by various administrative offices	1 ☐	2 ☐	3 ☐	4 ☐
Part-time work opportunities	1 ☐	2 ☐	3 ☐	4 ☐
Job placement of graduates	1 ☐	2 ☐	3 ☐	4 ☐
School reputation in community	1 ☐	2 ☐	3 ☐	4 ☐
Taking all things together, how satified are you with your educational program?	1 ☐	2 ☐	3 ☐	4 ☐

Section B – EDUCATION AND TRAINING PROGRAMS – Continued

32. **How much, if any, has each of the following been a problem with your education while attending your present (most recent) school?**
(Mark one box on each line)

	No problem at all	Somewhat of a problem	Very much a problem
Courses are too hard	1 ☐	2 ☐	3 ☐
Instructors do not help me enough	1 ☐	2 ☐	3 ☐
School does not offer the courses I want	1 ☐	2 ☐	3 ☐
My job takes too much time	1 ☐	2 ☐	3 ☐
Transportation to school is difficult	1 ☐	2 ☐	3 ☐
Parents are not interested in my education	1 ☐	2 ☐	3 ☐
Do not feel part of the school	1 ☐	2 ☐	3 ☐
Find it hard to adjust to school routine	1 ☐	2 ☐	3 ☐
Poor teaching	1 ☐	2 ☐	3 ☐
Worry over money problems (repayment of loan, support of dependents, family income, etc.)	1 ☐	2 ☐	3 ☐
My own ill health	1 ☐	2 ☐	3 ☐
Poor study habits	1 ☐	2 ☐	3 ☐
Family obligations (other than money problems)	1 ☐	2 ☐	3 ☐
Lack of good place to study at home	1 ☐	2 ☐	3 ☐
Personal problems	1 ☐	2 ☐	3 ☐
Do not see the need or worth of further education	1 ☐	2 ☐	3 ☐
My extra curricular activities interfere with my studies	1 ☐	2 ☐	3 ☐

33. **What is your present (most recent) choice of major or primary area of study?**

_____

_____

Section B – EDUCATION AND TRAINING PROGRAMS – Continued

34. **From where you live, how much time does (did) it take to travel to the school you currently attend (most recently attended)?** *(Mark only one)*

1 ☐ Live on campus

2 ☐ Ten minutes or less

3 ☐ 11 to 30 minutes

4 ☐ 31 to 60 minutes

5 ☐ 1 to 2 hours

6 ☐ 2 to 3 hours

7 ☐ More than 3 hours

35. **Which of the following best describes the grade average you have received in all of your course-work and in your primary area of study? If your school does not use letter grades, please choose the one that comes closest to how you have been graded.**
(Mark one in each column)

	All courses	Primary area
A	1 ☐	2 ☐
B	1 ☐	2 ☐
C	1 ☐	2 ☐
D	1 ☐	2 ☐
F, "fail" or "unsatisfactory"	1 ☐	2 ☐
Grades of "pass" or "satisfactory" only	1 ☐	2 ☐

36a. **Since you left high school, have you ever participated in a special services educational program which provides such services to students as counseling, tutoring, career guidance or placement, or help in getting admitted or readmitted to a school?**

1 ☐ Never heard of such a program
2 ☐ Have heard of such a program but have not participated
} *Skip to question 37*

3 ☐ Have participated in such a program – *Go to question 36b*

b. **What was the name and location of the program in which you participated?**

Name	
City	State

Section B – EDUCATION AND TRAINING PROGRAMS – Continued

37. **In paying for the education you received during your first year beyond high school, approximately how much of your expenses came from each of the following sources?** *(Mark all that apply)*

	None at all	Amount
Personal savings or summer earnings	01 ☐	$
Earnings while taking courses	02 ☐	
Parents	03 ☐	
Husband or wife	04 ☐	
Other relatives	05 ☐	
College Work-Study program	06 ☐	
National Defense Student Loan Program	07 ☐	
Educational Opportunity Grant Program	08 ☐	
Federal Guaranteed Student Loan Program	09 ☐	
State loan program	10 ☐	
Personal bank loan	11 ☐	
Other loans	12 ☐	
State scholarship or grant	13 ☐	
Local scholarship or grant	14 ☐	
College scholarship or grant	15 ☐	
Private scholarship or grant	16 ☐	
ROTC scholarship programs	17 ☐	
Veterans Administration survivor's benefits or direct benefits (GI Bill compensation or pension)	18 ☐	
Social Security Benefits for Students Age 18 to 22 (for children of retired, disabled, or deceased parents)	19 ☐	
Vocational Rehabilitation Program Benefits	20 ☐	
Other sources *(Please describe)* _____	21 ☐	

38. **About how much will (did) your FIRST YEAR of schooling cost regardless of who pays?**

Tuition and fees	$
Room and board	
Books	
Transportation	
Other school related expenses *(Specify)* _____	

Section B – EDUCATION AND TRAINING PROGRAMS – Continued

39. **What is the maximum amount of money you would be willing to borrow to complete your education?**

$ _____ ☐ None

40. **Not including vacations, approximately how many hours per week do you (did you) work for pay while attending school or college?** *(Mark only one)*

1 ☐ None

2 ☐ 1 to 5 hours

3 ☐ 6 to 10 hours

4 ☐ 11 to 15 hours

5 ☐ 16 to 20 hours

6 ☐ 21 to 25 hours

7 ☐ 26 to 30 hours

8 ☐ 31 to 40 hours

9 ☐ More than 40 hours

41. **Which of the following statements best describe your employment while attending school?** *(Mark all that apply)*

01 ☐ Not employed, by choice

02 ☐ Not employed, but looking for work

03 ☐ Work during vacation

04 ☐ Work as part of a financial aid package from the school

05 ☐ Work as part of a Work-Study program or other type of government assistance

06 ☐ Internship or Work-Study assignment, directly related to my school work

07 ☐ A temporary or short-term job not related to my school work

08 ☐ A permanent job without academic or career relevance

09 ☐ An entry level job in my chosen career field

10 ☐ Work for which I have experience and/or special skills

11 ☐ Other *(Please describe)*

_____

Section C – CIVILIAN WORK EXPERIENCE

42. **Please mark the one category which describes your civilian work experience since leaving high school.**

1 ☐ I have worked for pay at a full-time or part-time civilian job, have worked as an apprentice, or have taken part in an on-the-job-training program . . . . . *Go to question 43*

2 ☐ I have looked for work, but have not worked at a civilian job . . . . . *Skip to question 52, page 20*

3 ☐ I have not worked at a civilian job nor looked for one . . . . . *Skip to section D, page 23*

43. **Please describe your current civilian job. (If you have more than one, describe the one at which you worked the most hours.) If you do not have a job now, or are in the Armed Forces, please describe your most recent civilian job.**

a. **For whom do (did) you work?** *(Name of company, business organization, or other employer)*

b. **What kind of business or industry is this?** *(For example: radio and TV manufacturer, retail shoe store, restaurant, State Labor Department)*

c. **What kind of work are (were) you doing on this job?** *(For example: farming, typist, auto mechanic, waitress)*

d. **What are (were) your most important activities or duties on this job?** *(For example: keeping account books, selling suits, operating business machines)*

e. **Are (were) you –**

10 ☐ **An employee of a PRIVATE company, business, or individual for wages, salary, or commissions?**

20 ☐ **A GOVERNMENT employee (Federal, State, county, or local)?**

30 ☐ **Self-employed in your OWN business, professional practice, or farm?**

(If not a farm)
Is this business incorporated?

31 ☐ Yes 32 ☐ No

40 ☐ **Working WITHOUT PAY in family business or farm?**

f. **When did you start working at this job?**

_____ (Month) _____ (Year)

g. **When did you stop working at this job?**

_____ (Month) _____ (Year)

0 ☐ Still working at this job

Section C – CIVILIAN WORK EXPERIENCE – Continued

44. What are ALL the methods you used to look for work since leaving high school? *(Mark all that apply)*

- 01 ☐ Post secondary school employment service
- 02 ☐ High school employment service
- 03 ☐ Professional periodicals or organizations
- 04 ☐ Civil Service application
- 05 ☐ Public employment service
- 06 ☐ Private employment agency
- 07 ☐ Newspaper advertisement
- 08 ☐ Direct application to employers
- 09 ☐ Friends or relatives
- 10 ☐ Other *(Specify)* _____

45. How important to you was each of the following in deciding to take your present (most recent) job? *(Mark one box on each line)*

	Very important	Somewhat important	Not important
I did the same work during high school	1 ☐	2 ☐	3 ☐
Relative or friend in the same line of work	1 ☐	2 ☐	3 ☐
There was a job open	1 ☐	2 ☐	3 ☐
Work matches a hobby of mine	1 ☐	2 ☐	3 ☐
Good pay to start or within a few years	1 ☐	2 ☐	3 ☐
Job is secure and permanent	1 ☐	2 ☐	3 ☐
I like this kind of work	1 ☐	2 ☐	3 ☐
I can make my own decisions on the job	1 ☐	2 ☐	3 ☐
Good chances for promotion and advancement	1 ☐	2 ☐	3 ☐
Meeting and working with friendly people	1 ☐	2 ☐	3 ☐
Prepared for this kind of work in school	1 ☐	2 ☐	3 ☐
Can do this kind of work well	1 ☐	2 ☐	3 ☐
Could not get the work I wanted so I took this job	1 ☐	2 ☐	3 ☐
Job offers opportunities for career satisfaction	1 ☐	2 ☐	3 ☐

46. How many hours a week do you (did you) usually work at this job?

_____ Hours per week

47. Approximately how much do (did) you earn PER WEEK at this job before deductions?

$ _____ Per week

Section C – CIVILIAN WORK EXPERIENCE – Continued

48. **Which of the following best describes how you feel about your present (most recent) job?** *(Mark one box on each line)*

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
Pay	1 ☐	2 ☐	3 ☐	4 ☐
Other working conditions	1 ☐	2 ☐	3 ☐	4 ☐

49. **Since leaving high school, have you worked for any civilian employer other than the one you described in question 43?**

1 ☐ No – *Skip to question 51*

2 ☐ Yes – **How many?**_____ *Go to question 50*

50. **Please describe your other job.** *(If you worked for more than one other employer, describe the job you held the longest.)*

a. **For whom did you work?** *(Name of company, business organization, or other employer)*

b. **What kind of business or industry was this?** *(For example: radio and TV manufacturer, retail shoe store, restaurant, State Labor Department)*

c. **What kind of work were you doing on this job?** *(For example: farming, typist, auto mechanic, waitress)*

d. **What were your most important activities or duties on this job?** *(For example: keeping account books, selling suits, operating business machines)*

e. **Were you –**

10 ☐ **An employee of a PRIVATE company, business or individual for wages, salary, or commission?**

20 ☐ **A GOVERNMENT employee (Federal, State, county or local)?**

30 ☐ **Self-employed in your OWN business, professional practice or farm?**

(If not a farm)

Is this business incorporated?

31 ☐ Yes 32 ☐ No

40 ☐ **Working WITHOUT PAY in family business or farm?**

f. **When did you start working at this job?**

_____ (Month) _____ (Year)

g. **When did you stop working at this job?**

_____ (Month) _____ (Year)

Section C – CIVILIAN WORK EXPERIENCE – Continued

51. **Since leaving high school –**

a. **In how many different weeks did you work altogether? (Count all weeks in which you did any work at all)**

_____ Weeks

b. **During the weeks you worked, how many hours per week did you usually work?**

_____ Hours per week

52. **Since leaving high school, how many weeks have you spent looking for work or on layoff from a job?**

_____ Weeks

53. **When looking for a job, which of the following, if any, prevented you from getting the kind of work you were looking for?** *(Mark all that apply)*

01 ☐ Few jobs available
02 ☐ Not educationally qualified for types of work available
03 ☐ Required to join a union
04 ☐ Required to relocate
05 ☐ Expected to pay employment agency fee
06 ☐ Expected work experience I did not have
07 ☐ Too many people applied for the jobs that were available
08 ☐ Jobs available offered little or no opportunity for career development
09 ☐ Health problems or physical handicap
10 ☐ Other problems (*Please describe*) _____
11 ☐ Had no difficulty finding work

54a. **Are you an apprentice?**

1 ☐ Yes
2 ☐ No

b. **Have you ever taken a registered apprenticeship program?**

1 ☐ No – *Skip to question 55a*
2 ☐ Yes – *Go to question 54c*

c. **In what field is (was) your apprenticeship training?**

d. **Approximately how many hours per week do (did) you take part in this program?**

_____ Hours per week

e. **How long does (did) this program last?**

1 ☐ Less than 6 months
2 ☐ 6–11 months
3 ☐ 1 year
4 ☐ 2 years
5 ☐ 3 years
6 ☐ 4 years
7 ☐ 5 years or more

Section C – CIVILIAN WORK EXPERIENCE – Continued

55a. Did you receive any vocational training while you were in high school?

1 ☐ No – *Skip to question 58a, page 22*

2 ☐ Yes –*Go to question 55b*

b. In what field did you receive this training?

_____

56a. Have you tried to find work in this field of training since leaving high school?

1 ☐ No – *Skip to question 58a, page 22*

2 ☐ Yes – *Go to question 56b*

b. Which of the following, if any, apply to your experiences when trying to find work in your field of training?
(Mark all that apply)

1 ☐ I was offered a job related to my training

2 ☐ There were not many job openings in that type of work

3 ☐ I was told I was not qualified

4 ☐ They used equipment or tools I did not know how to use

5 ☐ Too many people applied for the jobs that were available

6 ☐ I did not have enough experience

7 ☐ I decided to enter a different line of work

8 ☐ The job required coursework or knowledge I did not have

9 ☐ Other *(Please describe)*

_____

Section C – CIVILIAN WORK EXPERIENCE – Continued

57a. Have you worked in the field of your high school vocational training since leaving high school?

1 ☐ No – *Skip to question 58a*

2 ☐ Yes – *Go to question 57b*

b. Which of the following, if any, apply to your experiences while working in this field? *(Mark all that apply)*

01 ☐ I have been able to apply almost everything I learned in my training

02 ☐ I have been able to apply the basic principles of my training, although some things are different

03 ☐ I would have liked more experience in my training before I started working

04 ☐ The training I received is not the way it is done on the job

05 ☐ I was trained with tools or equipment that are no longer used

06 ☐ I could have gotten my job without the training

07 ☐ The coursework associated with my vocational training was not helpful in my job performance

08 ☐ I would have liked more information about what was expected of me beyond skills training

09 ☐ I would have liked other types of experience or information to be included in the training *(Please describe)* 7

_____

10 ☐ Other *(Please describe)* _____

58a. While in high school, did you participate in any special program (example, Upward Bound, Project Opportunity, Talent Search, etc.) intended to help prepare you for further education?

1 ☐ No – *Skip to question 59*

2 ☐ Yes – *Go to question 58b*

b. Please print the exact name and location of the program in which you participated.

Name	
City	State

Section D – MILITARY SERVICE

59. **Since leaving high school, have you served in the active Armed Forces, in a Reserve or National Guard unit, or have you been enrolled in one of the service academies (e.g. West Point)?**

1 ☐ No – *Skip to section E, page 24*

2 ☐ Yes – *Go to question 60*

60. **Which military service did you enter? (Also indicate whether this was active duty or a Reserve or National Guard unit)**

_____

61. **When did you enter the Armed Forces?**

_____(Month)_____(Year)

62. **Are you presently serving on active duty in the Armed Forces?**

1 ☐ Yes

2 ☐ No

Please continue with section E

SECTION E

63. **Please PRINT the address and telephone number where you can most usually be reached during the coming year.**

Address (Number, street, city, State and ZIP code)	Telephone	
	Area code	Number

Please PRINT the names and addresses of two people who will always know where to get in touch with you. *(List no more than 1 person who now lives with you.)*

(1)

Name	Telephone	
	Area code	Number
Address (Number, street, city, State and ZIP code)		

(2)

Name	Telephone	
	Area code	Number
Address (Number, street, city, State and ZIP code)		

THANK YOU FOR YOUR COOPERATION

Appendix C

FIRST FOLLOW-UP QUESTIONNAIRE - FORM B

Prepared for the
UNITED STATES OFFICE OF EDUCATION
BY RESEARCH TRIANGLE INSTITUTE □ RESEARCH TRIANGLE PARK, NORTH CAROLINA
FALL 1973

ORM 2367, 9/73
3400

U.S. Office of Education
Department of Health, Education, & Welfare
Washington, D.C. 20202

Dear OPERATION FOLLOW-UP Participant:

More than a year has passed since you left high school, and the U.S. Office of Education is sponsoring the National Longitudinal Study of the High School Class of 1972. This study, being conducted by the U.S. Bureau of the Census and the Research Triangle Institute of North Carolina, is called OPERATION FOLLOW-UP. It is a nation-wide study which, we expect, will continue over a period of 6 to 8 years and produce valuable and interesting information.

We are asking you to participate in OPERATION FOLLOW-UP. The purpose of this follow-up is to find out what has happened to you and other seniors after leaving high school. The fact that you are working, married, in college or vocational school, or starting a family is important not only to you, but also to educational planners and policymakers. Through your completion of this questionnaire, valuable information can be obtained about a very important part of this country's population--young adults who are going through some of the most significant experiences of their lives.

Please take a little time and fill out this questionnaire. Let us know what you are doing, what you have done since high school, and what you are planning to do in the next year or so. All of the information that you provide will be absolutely confidential; your name will never be published or associated in any way with your individual answers. If there are questions that you would rather not answer, simply do not answer them.

About the questionnaire: you will not need to answer all sections of it. Begin with Section A and follow the instructions for each question. Your answers will guide you to skip parts which don't apply to you. Please follow all these instructions carefully. Most of the questions can be answered simply by circling the number for the response you choose. In some cases, you are asked to write out your answer to a question.

When you complete this questionnaire please return it to us in the enclosed post-paid envelope. We'll be waiting to hear from you.

We will be sending you results from OPERATION FOLLOW-UP in 1974. Watch for our OPERATION FOLLOW-UP Newsletters.

Sincerely,

J. A. Davis
RTI Project Director
Center for Educational Research and Evaluation

K. A. Tabler
USOE Project Director
National Center for Educational Statistics

P.S. May we have your permission to collect school record information (grades, admission test scores, and program) from your high school? This information, too, will be kept in absolute confidence. Please sign your name below if you give permission.

_____
(signature)

Section A — General Information

1. What are you doing now?

(Circle one number on each line.)

	Applies to me	Does not apply to me
Working for pay at a full-time or part-time job	1	2
Taking vocational or technical courses at any kind of school or college (for example, vocational, trade, business, or other career training school)	1	2
Taking academic courses at a two- or four-year college	1	2
On active duty in the Armed Forces (or service academy)	1	2
Homemaker	1	2
Temporary lay-off from work, looking for work, or waiting to report to work	1	2
Other (please describe: _____)	1	2

2. Did you complete high school?

(Circle one.)

No, still in high school ..... 1 — *(SKIP to q. 4)*

No, left high school without completing 2

Yes, graduated 3

Yes, left high school without graduating but have since passed a high school equivalency test, for example, the GED .. 4

3. When did you leave or graduate from the last high school that you attended?

Date left _____ (month) _____ (year)

FACTS ABOUT YOU IN OCTOBER 1973

4. With whom did you live, as of the first week of October 1973?

(Circle one.)

By myself 1

Parents 2

With husband or wife 3

With other relatives 4

With person(s) not related to me 5

5. How would you describe your living quarters, as of the first week of October 1973?

(Circle one.)

Private house or apartment 1

Dormitory or apartment operated by a school or college 2

Fraternity or sorority house 3

Rooming or boarding house 4

Other (please describe _____) 5

6a. Which of the following best describes the location of the place where you lived in the first week of October 1973?

(Circle one.)

In a rural or farming community 1
In a small city or town of fewer than 50,000 people that is not a suburb of a larger place 2
In a medium-sized city (50,000-100,000 people) 3
In a suburb of a medium-sized city 4
In a large city (100,000-500,000 people) 5
In a suburb of a large city 6
In a very large city (over 500,000 people) 7
In a suburb of a very large city 8

6b. How far is this from the place where you lived as a senior in high school?

(Circle one.)

Same place I lived in when I was a senior in high school 1
Less than 50 miles 2
50 to 99 miles 3
100 to 199 miles 4
200 to 499 miles 5
500 miles or more 6

7a. What was your marital status, as of the first week of October 1973?

(Circle one.)

Never married, but plan to be married within the next 12 months 1
Never married, and don't plan to be married within the next 12 months ..... 2 } *(SKIP to q. 9)*
Married 3
Separated, divorced, or widowed 4

7b. When were you first married? _____ **(month)** _____ **(year)**

8. Did you have any children as of the first week of October 1973?

No 1
Yes (How many? _____) 2

9. As of the first week of October 1973, were you dependent upon your parents or any other friends or relatives for more than one half of your financial support?

Yes 1
No 2

10. As of the first week of October 1973, how many persons (not counting yourself) were dependent upon YOU for more than one half of their financial support?

(Circle one.)

None 0
One 1
Two 2
Three or more 3

11. **What is the best estimate of your income before taxes for all of 1973? If you are married, please estimate your husband's or wife's income in the second column provided. Do not include loans or gifts.**

	Your Own Income	Your Spouse's Income
TOTAL INCOME	$_____	$_____
From wages, salaries, commissions, and net income from business or farm	$_____	$_____
Scholarships, fellowships	$_____	$_____
Other (for example, interest, rental property income, public assistance, and unemployment compensation)	$_____	$_____

OPINIONS ABOUT YOURSELF AND THE FUTURE

12. **How far in school would you like to get?**

(Circle one.)

High school only		1
Vocational, trade, or business school	Less than two years	2
	Two years or more	3
College program	Some college (including two-year degree)	4
	Finish college (four- or five-year degree)	5
	Master's degree or equivalent	6
	Ph.D., M.D., or equivalent	7

13a. **If no other funds were available (no scholarships, parental aid, or job), how much money would you be willing to borrow to get this schooling?**

(Circle one.)

None	0
Less than $500	1
$500 to $999	2
$1,000 to $1,999	3
$2,000 to $3,999	4
$4,000 to $4,999	5
$5,000 to $6,000	6
More than $6,000 (please specify amount _____)	7

13b. **Has anyone discussed with you the terms and conditions necessary to borrow money for this purpose?**

No	1 — *(SKIP to q. 14)*
Yes	2

Next page ⟶

13c. **As a result, was there any change in your borrowing plans?**

(Circle one.)

No, I had no borrowing plans	1
No, there was no change in my borrowing plans	2
Yes, I decided to borrow more than I planned	3
Yes, I decided to borrow less than I planned	4
Yes, I decided not to borrow for this purpose	5

14. As things stand now, how far in school do you think you actually will get?

(Circle one.)

- High school only 1
- Vocational, trade, or business school .....
  - Less than two years 2
  - Two years or more 3
- College program .....
  - Some college (including two-year degree) 4
  - Finish college (four- or five-year degree) 5
  - Master's degree or equivalent 6
  - Ph.D., M.D., or equivalent 7

15. How do you feel about each of the following statements?

(Circle one number on each line.)

	Agree Strongly	Agree	Disagree	Disagree Strongly	No Opinion
I take a positive attitude toward myself	1	2	3	4	5
Good luck is more important than hard work for success	1	2	3	4	5
I feel I am a person of worth, on an equal plane with others	1	2	3	4	5
I am able to do things as well as most other people	1	2	3	4	5
Every time I try to get ahead, something or somebody stops me	1	2	3	4	5
Planning only makes a person unhappy since plans hardly ever work out anyway	1	2	3	4	5
People who accept their condition in life are happier than those who try to change things	1	2	3	4	5
On the whole, I'm satisfied with myself	1	2	3	4	5

16. What do you expect to be doing in October 1974?

(Circle one number on each line.)

	Expect to be doing	Do not expect to be doing
Working for pay at a full-time or part-time job	1	2
Taking vocational or technical courses at any kind of school or college (for example, vocational, trade, business, or other career training school)	1	2
Taking academic courses at a two- or four-year college	1	2
On active duty in the Armed Forces (or service academy)	1	2
Homemaker	1	2
Other (please describe _____)	1	2

17. Do you plan to have your first child (or another child) before October 1974?

(Circle one.)

- Yes 1
- No 2
- Don't know 3

18. **How many children altogether do you eventually expect to have?**

(Circle one.)

None 0
One 1
Two 2
Three 3
Four or more 4

19. **What kind of work will you be doing when you are 30 years old? (Circle the one that comes closest to what you expect to be doing.)**

CLERICAL such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent 01
CRAFTSMAN such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter 02
FARMER, FARM MANAGER 03
HOMEMAKER OR HOUSEWIFE ONLY 04
LABORER such as construction worker, car washer, sanitary worker, farm laborer 05
MANAGER, ADMINISTRATOR such as sales manager, office manager, school administrator, buyer, restaurant manager, government official 06
MILITARY such as career officer, enlisted man or woman in the Armed Forces 07
OPERATIVE such as meat cutter, assembler, machine operator, welder, taxicab, bus, or truck driver, gas station attendant 08
PROFESSIONAL such as accountant, artist, registered nurse, engineer, librarian, writer, social worker, actor, actress, athlete, politician, but not including public school teacher 09
PROFESSIONAL such as clergyman, dentist, physician, lawyer, scientist, college teacher 10
PROPRIETOR OR OWNER such as owner of a small business, contractor, restaurant owner 11
PROTECTIVE SERVICE such as detective, policeman or guard, sheriff, fireman 12
SALES such as salesman, sales clerk, advertising or insurance agent, real estate broker 13
SCHOOL TEACHER such as elementary or secondary 14
SERVICE such as barber, beautician, practical nurse, private household worker, janitor, waiter 15
TECHNICAL such as draftsman, medical or dental technician, computer programmer 16

NOT WORKING 17

20. **How important is each of the following to you in your life?** **(Circle one number on each line.)**

	Not Important	Somewhat Important	Very Important
Being successful in my line of work	1	2	3
Finding the right person to marry and having a happy family life	1	2	3
Having lots of money	1	2	3
Having strong friendships	1	2	3
Being able to find steady work	1	2	3
Being a leader in my community	1	2	3
Being able to give my children better opportunities than I've had	1	2	3
Living close to parents and relatives	1	2	3
Getting away from this area of the country	1	2	3
Working to correct social and economic inequalities	1	2	3
Having leisure time to enjoy my own interests	1	2	3

Section B — Education and Training

This section asks information about your training and education since leaving high school. First we would like to know....

21. Between the time you left high school and October 1973, have you participated in any program such as on-the-job training, registered apprenticeships, manpower training, personal enrichment, or correspondence courses? Do not include Armed Forces training programs, or regular school and college programs.

No ..... 1 — *(SKIP to q. 23)* *Next page* ⟶

Yes 2

22a. What type of training program(s) have you participated in?

(Circle one number on each line.)

	Yes	No
On-the-job training (a program of instruction during normal working hours)	1	2
Formal Registered Apprenticeship (your State or Labor Union)	1	2
Manpower Development and Training (MDTA)	1	2
Work Incentive (WIN)	1	2
Neighborhood Youth Corps (NYC)	1	2
Other manpower program (please specify: _____)	1	2
Correspondence course(s)	1	2
Non-credit courses for personal enrichment	1	2
Other (please specify: _____)	1	2

22b. What type of work were you being trained for or learning about? If you have participated in more than one program, answer for the one in which you spent the most time. (Examples: plumbing, typing, auto mechanic work, photography, sales, etc.)

(Write in): _____

22c. How long does (or did) this program last?

(Circle one.)

Less than one month 1

One to five months 2

Six to eleven months 3

One year or more 4

22d. Have you completed this program?

(Circle one.)

Yes 1

No, left without completing 2

No, still enrolled 3

22e. Have you used this training on any job?

Yes 1

No 2

23. **Since leaving high school, have you attended any school like a college or university, service academy, business school, trade school, technical institute, vocational school, community college, and so forth?**

Yes ..... 1 — *(SKIP to q. 25)*

No 2

24. **Here are some reasons others have given for NOT continuing their formal education after leaving high school. Which of these reasons, if any, apply to you?**

(Circle one number on each line.)

	Applies to me	Does not apply to me
Needed to earn money to support my family	1	2
Needed to earn money before I could pay for further education	1	2
Could not afford a four-year college or university education	1	2
Failed to find out in time about admission requirements, cost of attending, availability of a school in the area, etc.	1	2
Poor high school grades or poor scores on college admission tests	1	2
Lack of high school credits required for college entrance	1	2
Applied to one or more schools, but was not accepted	1	2
Lack of a school within commuting distance of my home	1	2
Discouraged from continuing by teachers or counselor	1	2
Discouraged from continuing by parents	1	2
Wanted to enter Armed Forces	1	2
My plans did not require more education	1	2
Planned to be married	1	2
School is not for me; I don't like it	1	2
Offered a job I wanted	1	2
Wanted to earn money for myself	1	2
Wanted practical experience before going on to school	1	2

(SKIP to Section C, page 15)

SCHOOL ATTENDANCE IN OCTOBER 1973

25. **Were you taking classes or courses at any school during the first week of October 1973?**

No ..... 1 — *(SKIP to q. 29a, page 9)* →

Yes 2

26a. **What is the exact name and location of the school you were attending in the first week of October 1973? (Please print and do not abbreviate.)**

School Name: _____

City: _____ State: _____

26b. **What kind of school is this?** **(Circle one.)**

Vocational, trade, business or other career training school 1

Junior or community college (two-year) 2

Four-year college or university 3

Other (please describe: _____) 4

26c. **Is this school public or private?**

Public 1

Private 2

27a. **When did you first attend this school?** _____ **(month)** _____ **(year)**

27b. **During the first week of October 1973, were you classified by this school as a full-time student?**

Yes 1
No 2

27c. **About how many hours a week did your classes meet in the subjects or courses in which you were enrolled at that time? Include time in lectures, shop, laboratories, etc.**

_____ Hours per week

27d. **At that time were you classified by your school as a freshman or sophomore?**

(Circle one.)

My school doesn't classify students this way 1
Freshman (first-year student) 2
Sophomore (second-year student) 3
Other classification (specify: _____) 4

28a. **As of the first week of October 1973, what was your actual or intended field of study or training area (for example, practical nurse, machinist, beautician, civil engineering, accounting, psychology, home economics, etc.) Please name the specific field or area:**

(Write in) _____

28b. **Is this in an academic field or vocational area? Please select below the academic field OR vocational area which comes closest to this field or area.**

(Circle only one academic field OR one vocational area.)

ACADEMIC FIELDS (typically leading to at least a Bachelor's degree)

Biological Sciences (zoology, physiology, anatomy, etc.) 01
Business (accounting, marketing, personnel management, etc.) 02
Education (elementary, special, physical, etc.) 03
Engineering (civil, electrical, mechanical, etc.) 04
Humanities and Fine Arts (music, religion, English, etc.) 05
Physical Sciences and Mathematics (physics, geology, chemistry, etc.) 06
Social Sciences (psychology, history, economics, sociology, etc.) 07
Other academic fields (agriculture, home economics, nursing, etc.) 08
An academic field, but undecided (circle here and SKIP to q. 29) 09

VOCATIONAL AREAS (typically not leading to a Bachelor's degree)

Office and Clerical (bookkeeping, stenography, commercial art, general office, etc.) 10
Computer Technology (keypunch operator, programming, computer operations, etc.) 11
Mechanical and Engineering Technology (automotive mechanic, machinist, construction, drafting, electronics, etc.) 12
Health Services (lab technician, occupational therapy, practical nursing, etc.) 13
Public Services (police science, food service, recreation, beautician, etc.) 14
Other vocational areas (agriculture, home economics, etc.) 15
A vocational area, but undecided (circle here and SKIP to q. 29) 16

28c. **How long does it normally take to complete this program?**

(Circle one.)

Less than three months 1
Three to five months 2
Six to eleven months 3
One to two years 4
More than two years 5

SCHOOL ATTENDANCE IN OCTOBER 1972

29a. Now please think back a year to the Fall of 1972. Were you taking classes or courses at any school during the month of October 1972?

Yes ..... 1 —*SKIP to q. 30a*

No 2

29b. Here are some reasons others have given for NOT continuing their formal education right after leaving high school. Which of these reasons apply to you?

(Circle one number on each line.)

	Applies to me	Does not apply to me
Needed to earn money to support my family	1	2
Needed to earn money before I could pay for further education	1	2
Could not afford a four-year college or university education	1	2
Failed to find out in time about admission requirements, cost of attending, availability of a school in the area, etc.	1	2
Poor high school grades or poor scores on college admission tests	1	2
Lack of high school credits required for college entrance	1	2
Applied to one or more schools, but was not accepted	1	2
Lack of a school within commuting distance of my home	1	2
Discouraged from continuing by teachers or counselor	1	2
Discouraged from continuing by parents	1	2
Wanted to enter Armed Forces	1	2
My plans did not require more education	1	2
Wanted to take a break	1	2
Planned to be married	1	2
School is not for me; I don't like it	1	2
Offered a job I wanted	1	2
Wanted to earn money for myself	1	2
Wanted practical experience before going on to school	1	2

SKIP to q. 39, page 12 →

30. Was the school you attended in October 1972 the same school you attended in the first week of October 1973? **(Circle one.)**

Yes ..... 1 —*SKIP to q. 33b*

No, not enrolled in October 1973 ..... 2 —*SKIP to q. 32a*

No, enrolled in different school 3

Next page →

31. What were your reasons for changing schools? **(Circle one number on each line.)**

	Applies to me	Does not apply to me
My interest changed, and my former school did not offer the course of study I wanted	1	2
Wanted to attend a less expensive school	1	2
My grades were too low to continue at the former school	1	2
Wanted to be at a smaller school	1	2
Wanted to be at a larger school	1	2
Wanted to attend school closer to home	1	2
Wanted to attend a school farther away from home	1	2
Wanted to attend a school that would give me better career opportunities	1	2
Wanted to attend a school where I could feel more like I belonged	1	2
Wanted to attend a school where I could maximize my intellectual and personal development	1	2
More group or social activities of interest	1	2

32a. What is the exact name and location of the school you were attending in the month of October 1972? (Please print and do not abbreviate.)

School Name: _____

City: _____ State: _____

32b. What kind of school is this?

(Circle one.)

Vocational, trade, business or other career training school 1
Junior or community college (two-year) 2
Four-year college or university 3
Other (please describe: _____) 4

32c. Is this school public or private?

Public 1
Private 2

32a. When did you first attend this school? _____ (month) _____ (year)

33b. During October 1972, were you classified by this school as a full-time student?

Yes 1
No 2

33c. About how many hours a week did your classes meet in the subjects or courses in which you were enrolled at that time? Include time in lectures, shop, laboratories, etc.

_____ Hours per week

34. Was your field of study or training area in October 1972 the same as you indicated for the first week of October 1973?

(Circle one.)

Yes .....1 — *(SKIP to q. 39, page 12)* →
No, wasn't enrolled in October 1973 2
No, none indicated for October 1973 .....3 } — *(SKIP to q. 36a) Next page* →
No, different than in October 1973 4

35. Listed below are some reasons why students change fields or training areas. What were the reasons in your situation?

(Circle one number on each line.)

	Applies to me	Does not apply to me
Courses more difficult than I expected	1	2
Met people with new ideas	1	2
Poor advice on original choice	1	2
Lack of information on jobs related to original choice	1	2
Content of courses different from what I expected	1	2
New information about other fields of study or training areas	1	2
Interest aroused by courses	1	2
More jobs available for graduates in the field I changed to	1	2
Other (please specify: _____)	1	2

36a. **In October 1972, what was your actual or intended field of study or training area (for example, practical nursing, machinist, beautician, civil engineering, accounting, psychology, home economics, etc.)? Please name the specific field or area:**

(Write in): _____

36b. **Is this in an academic field or vocational area? Please select below the academic field OR vocational area which comes closest to this field or area.**

(Circle only one academic field OR vocational area.)

ACADEMIC FIELDS (typically leading to at least a Bachelor's degree)

Biological Sciences (zoology, physiology, anatomy, etc.) 01

Business (accounting, marketing, personnel management, etc.) 02

Education (elementary, special, physical, etc.) 03

Engineering (civil, electrical, mechanical, etc.) 04

Humanities and Fine Arts (music, religion, English, etc.) 05

Physical Sciences and Mathematics (physics, geology, chemistry, etc.) 06

Social Sciences (psychology, history, economics, sociology, etc.) 07

Other academic fields (agriculture, home economics, nursing, etc.) 08

An academic field, but undecided (circle here and SKIP to q. 37) 09

VOCATIONAL AREAS (typically not leading to a Bachelor's degree)

Office and Clerical (bookkeeping, stenography, commercial art, general office, etc.) 10

Computer Technology (keypunch operator, programming, computer operations, etc.) 11

Mechanical and Engineering Technology (automotive mechanic, machinist, drafting, construction, electronics, etc.) 12

Health Services (lab technician, occupational therapy, practical nursing, etc.) 13

Public Services (police science, food service, recreation, beautician, etc.) 14

Other vocational areas (agriculture, home economics, etc.) 15

A vocational area, but undecided (circle here and SKIP to q. 37) 16

36c. **How long does it normally take to complete this program?**

(Circle one.)

Less than three months 1

Three to five months 2

Six to eleven months 3

One to two years 4

More than two years 5

37. **Did you withdraw altogether from this school prior to completing your training or program of studies?**

No ..... 1 — *(SKIP to q. 39)* *Next page* ⟶

Yes 2

38. **What were your reasons for withdrawing altogether?** **(Circle one number on each line.)**

	Applies to me	Does not apply to me
Became ill	1	2
Had financial difficulties	1	2
Family emergency	1	2
Was offered a good job	1	2
Got married or planned to get married	1	2
School work was not relevant to the real world	1	2
Wanted to get practical experience	1	2
Courses were too hard	1	2
Failing or not doing as well as I wanted	1	2
Became homesick	1	2
Other (please describe _____)	1	2

ATTENDANCE AT OTHER SCHOOLS AT OTHER TIMES

39. **Besides any school(s) you may already have reported in this section of the questionnaire, have you attended any other schools since leaving high school? Include schools like colleges and universities, service academies, business schools, trade schools, technical institutes, vocational schools, community colleges, and so forth.**

No ..... 1 — *(SKIP to q. 41a)*

Yes 2

40a. **What is the exact name and location of this school? Please print and do not abbreviate. (If you attended more than one other school, then give the one that you attended the longest.)**

School Name: _____

City _____ State: _____

40b. **What kind of school is this?** **(Circle one.)**

Vocational, trade, business or other career training school 1

Junior or community college (two-year) 2

Four-year college or university 3

Other (please describe: _____) 4

40c. **When did you first attend this school?** _____ **(month)** _____ **(year)**

40d. **Are you currently attending this school?**

Yes 1

No (Date left _____ month _____ year) 2

EDUCATION AND TRAINING PROGRESS AFTER HIGH SCHOOL

41a. **Since leaving high school which of the following best describes how well you have done in all of your course work or training through October 1973? If your school(s) or program(s) do not use letter grades, please choose the letter grade that comes closest to describing your progress.**

(Circle one.)

Mostly A 1

About half A and half B 2

Mostly B 3

About half B and half C 4

Mostly C 5

About half C and half D 6

Mostly D 7

Mostly below D 8

41b. **Do any of these schools or programs give credits?** **(Circle one.)**

I don't know ..... 1 } — *(SKIP to q. 42)* *Next page* →

No ..... 2 }

Yes 3

41c. **Since leaving high school, about how many credits had you earned by October 1973?** (Write in.)

_____ Number of quarter hours

_____ Number of semester hours

_____ Number of other type of credits (please specify type: _____)

42. Whether or not you were enrolled in school in the first week of October 1973, were you working at that time toward a certificate, degree, or license of any kind?

(Circle one.)

No 1
Yes, a certificate (specify in what: _____) 2
Yes, a license (specify in what: _____) 3
Yes, a two-year or three-year vocational degree or diploma 4
Yes, a two-year academic degree 5
Yes, a four-year or five-year college Bachelor's degree 6
Yes, other (please specify: _____) 7

43. Since leaving high school, had you earned any certificate, license, diploma, or degree of any kind prior to October 1973?

No 1
Yes (please specify _____) 2

44a. Between the time you left high school and October 1973, had you participated in a formal program of academic or career counseling, tutoring, or remedial courses other than those services that were provided to all students in your college, school or training area?

(Circle one.)

Never heard of such a program 1
Have heard of such a program but have not participated 2
(SKIP to q. 45)
Yes 3

44b. What was the exact name, nature, and location of the program in which you participated?

Name of the program _____

Nature of your participation:

(Circle one number on each line.)

	Applies to me	Does not apply to me
Counseling	1	2
Tutoring	1	2
Remedial courses	1	2

Name of institution: _____

City: _____ State _____

45. With regard to your education and training since leaving high school, how satisfied as a whole are you with the following?

(Circle one number on each line.)

	Very satisfied	Somewhat satisfied	Neutral or no opinion	Somewhat dissatisfied	Very dissatisfied
The ability, knowledge, and personal qualities of most teachers	1	2	3	4	5
The social life	1	2	3	4	5
Development of my work skills	1	2	3	4	5
My intellectual growth	1	2	3	4	5
The amount of money I have to get along on	1	2	3	4	5

SCHOOL FINANCES

The purpose of this part is to learn how students pay for their training and education after leaving high school, so that financial aid programs can be changed to meet student needs better. The following questions apply to any training and education you received after leaving high school and before Fall 1973.

46a. About how much did training or schooling cost during the first year after high school, regardless of who paid? Give the expenses and the number of months you were in school or training during this period.

Total expenses $_____ Spent over how many months? _____

46b. How was this money spent?

$_____ Tuition and fees
$_____ Room and board
$_____ Books and supplies
$_____ Transportation
$_____ Other related school expenses (clothing, laundry, etc.)

47. In paying for these costs, how much came from each of the following sources? (Please circle all that apply and write in the amounts.)

SAVINGS OR EARNINGS

Own savings or summer earnings ..... 01 ($_____)
College work-study programs ..... 02 ($_____)
Other earnings while taking courses ..... 03 ($_____)

INDIVIDUAL SUPPORT

Parents ..... 04 ($_____)
Husband or wife ..... 05 ($_____)
Other relatives or friends ..... 06 ($_____)

SCHOLARSHIPS OR GRANTS

Basic Educational Opportunity Grant Program ..... 07 ($_____)
Supplementary Educational Opportunity Grant Program ..... 08 ($_____)
College scholarship or grant from college funds ..... 09 ($_____)
ROTC scholarship or stipend ..... 10 ($_____)
Nursing Scholarship Program ..... 11 ($_____)
Health Professions Scholarship Program ..... 12 ($_____)
State scholarships ..... 13 ($_____)
Other scholarships ..... 14 ($_____)

LOANS

Federal Guaranteed Student Loan Programs ..... 15 ($_____)
State Loan Program ..... 16 ($_____)
Regular bank loan ..... 17 ($_____)
National Defense (Direct) Student Loan Program ..... 18 ($_____)
Health Professions Student Loan Program ..... 19 ($_____)
Nursing Student Loan Program ..... 20 ($_____)

OTHER

Law Enforcement Educational Program ..... 21 ($_____)
Veterans Administration War Orphans or Survivors Benefits Programs ..... 22 ($_____)
Veterans Administration direct benefits (GI Bill compensation or pension) ..... 23 ($_____)
Vocational Rehabilitation Program benefits ..... 24 ($_____)
Social Security Benefits (for students aged 18-22 who are children of retired, disabled, or deceased parents) ..... 25 ($_____)

Section C — Civilian Work Experience

In this section we would like to obtain information about the jobs you have held in October 1973 and October 1972, including full-time jobs, part-time jobs, apprenticeships, and on-the-job training (but do not include military service).

JOB HELD IN OCTOBER 1973

48a. Did you hold a job of any kind during the first week of October 1973?

Yes ..... 1 — *(SKIP to q. 49)* *Next page* ⟶
No 2

48b. What were the reasons you were not working during the first week of October 1973?

(Circle one number on each line.)

	Applies to me	Does not apply to me
Did not want to work	1	2
On temporary layoff from work or waiting to report to work	1	2
Was full-time homemaker	1	2
Going to school	1	2
Not enough job openings available	1	2
Union restrictions	1	2
Would have required moving	1	2
Required work experience I did not have	1	2
Jobs available offered little opportunity for career development	1	2
Health problems or physical handicap	1	2
Could not arrange child care	1	2
Other family responsibilities (including pregnancy)	1	2
Waiting to enter or in Armed Forces	1	2
Not educationally qualified for types of work available	1	2

48c. Were you looking for work during September 1973?

Yes 1
No ..... 2 — *(SKIP to q. 54a, page 17)* ⟶

49. Please describe below the job you held during the first week of October 1973. If you held more than one job at that time, describe the one at which you worked the most hours.

a. For **whom** did you work? (Name of company, business organization, or other employer)

(Write in): _____

b. What **kind of business** or industry was this? (For example, retail shoe store, restaurant, etc.)

(Write in): _____

c. What kind of **job or occupation** did you have in this business or industry? (For example, salesman, waitress, secretary, etc.)

(Write in): _____

d. What were your most frequent **activities or duties** on this job? (For example, selling shoes, waiting on tables, typing and filing, etc.)

(Write in): _____

e. Were you:

(Circle one.)

An employee of a PRIVATE company, business, or individual working for wages, salary, or commissions? 1

A GOVERNMENT employee (Federal, State, county, or local)? 2

Self-employed in your OWN business, professional practice, or farm? 3

Working WITHOUT PAY in family business or farm? 4

f. When did you **start** working at this job? _____(month) _____(year)

g. Are you **currently** working at this job?

Yes 1

No .....?

50a. How many hours per WEEK did you usually work at this job up through the first week of October 1973?

_____Hours per week

50b. Approximately how much did you usually earn per WEEK at this job at that time before deductions? (If not paid by the week, please estimate.)

$_____per week

51. How satisfied were you with the following aspects of this job?

(Circle one number on each line.)

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
Pay and fringe benefits	1	2	3	4
Importance and challenge	1	2	3	4
Working conditions	1	2	3	4
Opportunity for promotion and advancement with this employer	1	2	3	4
Opportunity for promotion and advancement in this line of work	1	2	3	4
Security and permanence	1	2	3	4
Opportunity for developing new skills	1	2	3	4
Job as a whole	1	2	3	4

52a. Do you expect to be working for this same employer in October 1974?

Yes 1
No 2

52b. Do you expect to be working at this same kind of job or occupation in October 1974?

Yes 1
No 2

53. Were you working at any other job during the first week of October 1973 at the same time as the job you described above?

Yes 1
No 2

JOB HELD IN OCTOBER 1972

54a. Now please think back to about a year ago. Did you hold a job of any kind during the month of October 1972?

(Circle one.)

Yes, same job as in October 1973 ..... 1 — *(SKIP to q. 56a)*
Yes, but different job than in October 1973 ..... 2 — *(SKIP to q. 55)*
No 3

} *Next page* ⟶

54b. What were the reasons you were not working during the month of October 1972?

(Circle one number on each line.)

	Applies to me	Does not apply to me
Did not want to work	1	2
On temporary layoff from work or waiting to report to work	1	2
Was full-time homemaker	1	2
Going to school	1	2
Not enough job openings available	1	2
Union restrictions	1	2
Would have required moving	1	2
Required work experience I did not have	1	2
Jobs available offered little opportunity for career development	1	2
Health problems or physical handicap	1	2
Could not arrange child care	1	2
Other family responsibilities (including pregnancy)	1	2
Waiting to enter or in Armed Forces	1	2
Not educationally qualified for types of work available	1	2

54c. Did you look for work during October 1972?

Yes 1
No 2

} — *(SKIP to q. 58)* *Next page* ⟶

55. Please describe below the job you held in October 1972. If you held more than one job at that time, describe the one at which you worked the most hours.

a. For **whom** did you work? (Name of company, business organization, or other employer)

(Write in): _____

b. What **kind of business** or industry was this? (For example, retail shoe store, restaurant, etc.)

(Write in): _____

c. What kind of **job or occupation** did you have in this business or industry? (For example, salesman, waitress, secretary, etc.)

(Write in): _____

d. What were your most frequent **activities or duties** on this job? (For example, selling shoes, waiting on tables, typing and filing, etc.)

(Write in): _____

e. Were you:

(Circle one.)

An employee of a PRIVATE company, business, or individual working for wages, salary, or commissions? 1

A GOVERNMENT employee (Federal, State, county, or local)? 2

Self-employed in your OWN business, professional practice, or farm? 3

Working WITHOUT PAY in family business or farm? 4

f. When did you **start** working at this job? _____ (month) _____ (year)

g. Are you **currently** working at this job?

Yes 1

No (Left job: _____ month _____ year) 2

56a. How many hours per WEEK did you usually work at this job in October 1972?

_____ Hours per week

56b. Approximately how much did you usually earn per WEEK at this job back then before deductions? (If not paid by the week, please estimate.)

$_____ per week

57. Were you working at any other job during the month of October 1972 at the same time as the job you described above?

Yes 1

No 2

GENERAL

58. Each part of this question refers to the entire 52-week period from October 1972 to October 1973.

a. About how many different weeks did you work altogether during this period? (Count all weeks in which you did any work at all or were on paid vacation.) _____ Number of weeks

b. How many weeks during this period did you spend looking for work or on layoff from a job or waiting to report to a job? _____ Number of weeks

c. How many different employers did you work for altogether during this period? (Count each employer only once, even if you had different jobs for the same employer.) _____ Number of employers

59. Since leaving high school, what methods did you use at any time in looking for work, and were they useful?

(Circle one number on each line.)

	Never looked or used	Used but did NOT obtain job	Used and obtained job
High school employment service	1	2	3
Other school or college placement service	1	2	3
Professional periodicals or organizations	1	2	3
Civil Service applications	1	2	3
Public employment service	1	2	3
Private employment agency	1	2	3
Community action or welfare groups	1	2	3
Newspaper advertisement	1	2	3
Direct application to employers	1	2	3
Registration with a union	1	2	3
Friends or relatives	1	2	3
Other (specify: _____)	1	2	3

60. While you were in high school, did you receive any specialized training intended to prepare you for immediate employment upon leaving school? (For example, auto mechanics, secretarial skills, or nurses aid.)

No ..... 1 — *(SKIP to Section D) Next page* →

Yes (In what area did you receive this training? _____) 2

61. Since leaving high school, have you worked in a job where you expected to use this training?

(Circle one.)

No, never looked for work where I could use it ..... 1 — *(SKIP to Section D) Next page* →

No, but looked for work where I could use it ..... 2 — *(SKIP to q. 63)*

Yes 3

62. Which of the following apply to your experience while working in this area? **(Circle one number on each line.)**

	Applies to me	Does not apply to me
I have been able to apply almost everything I learned in my high school training	1	2
I have been able to apply the basic principles of my training, although some things are different	1	2
I would have liked more experience in my training before I started working	1	2
I received training different from the way it is done on the job	1	2
I found my high school training useful in on-the-job training program(s)	1	2
I was trained with tools or equipment that are not used on my job	1	2
I could have gotten my job without the training	1	2
I took coursework associated with my training which was not helpful in performing my job	1	2
I would have liked more information about what was expected in the job beyond skills training	1	2
I would have liked other types of experience or information to be included in the training (describe: _____)	1	2
I consider myself doing as well as others with similar training	1	2
I consider the training a wise choice	1	2

63. Which of the following apply to your experiences when trying to find work in your area of high school training?

(Circle one number on each line.)

	Applies to me	Does not apply to me
I did not find many job openings in that type of work	1	2
I was told I was not qualified	1	2
I did not know how to use the equipment or tools of the job	1	2
I was not offered enough pay	1	2
I did not have enough experience	1	2
I decided to enter a different line of work	1	2
I did not have the coursework or knowledge required of the job	1	2
I was offered a job related to my training but did not take it	1	2

Section D — Military Service

64. Since leaving high school, have you served in the Armed Forces, in a Reserve or National Guard Unit, or have you been enrolled in one of the service academies (for example, West Point)?

(Circle one.)

No 1
Yes, National Guard or Reserves but not active duty 2
Yes, active duty or service academy 3

—(SKIP to Section E, page 22)

65. Which branch of the Armed Forces did you enter? (Write in): _____

66. Did you enlist or were you drafted?

(Circle one.)

I entered a service academy ..... 1 *(SKIP to q. 72) Next page*
I enlisted ..... 2 When? _____ (month) _____ (year)
I was drafted ..... 3 When? _____ (month) _____ (year)

67. When did you begin active duty? _____ (month) _____ (year)

68. Have you received (or are you receiving) four or more weeks of specialized schooling while in the Armed Forces?

No ..... 1 *—(SKIP to q. 70)*
Yes 2

69a. In which of the following fields have you received specialized schooling?

(Circle one.)

Business (e.g., administration, management, clerical work, communications, personnel work, etc.) 1
Computer Technology (e.g., computer programming, computer operations, etc.) 2
Health Professions (e.g., medical technology, occupational therapy, X-ray technology, pharmacy, etc.) 3
Mechanical and Engineering Technology (e.g., aircraft mechanics, automotive mechanics, construction, printing, drafting, machinist, electronics, etc.) 4
Services (e.g., food service, security work, aircraft control, etc.) 5
Other (please specify: _____) 6

69b. What is the name of the specialized schooling program in which you spent the longest period of time? Specify your military specialty code, or MOS. (Please print and do not abbreviate.)

Name of program: _____ **MOS:** _____

70. What is the highest pay grade and specialty rating you have held?

Pay grade: _____ **Specialty rating:** _____

71. Have you taken any courses while in the Armed Forces that:

(Circle one number on each line.)

	Yes	No
Prepared you for the high school equivalency test?	1	2
Prepared you for equivalency tests that can be taken for college credit?	1	2
Were college-sponsored courses which gave college credits?	1	2

72. Do you plan to use the GI Bill to further your education?

(Circle one.)

Yes 1
No 2
Undecided 3

73. How satisfied are (were) you with the following aspects of your work in the Armed Forces?

(Circle one number on each line.)

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied
Pay and fringe benefits	1	2	3	4
Importance and interest of work	1	2	3	4
Working conditions	1	2	3	4
Opportunity for promotion and advancement in the Armed Forces	1	2	3	4
Opportunity for promotion and advancement in my specialty	1	2	3	4
Security and permanence	1	2	3	4
Opportunity for developing new skills	1	2	3	4
Work as a whole	1	2	3	4

74. Are you currently on active duty?

No (Date left: _____ month _____ year) 1
Yes ..... 2 —*(SKIP to Section E) Next page* →

75. How long do you expect to be on active duty in the Armed Forces?

(Circle one.)

For a two-year tour of duty only 1
For a three- or four-year tour of duty 2
For more than one enlistment, but less than a full career 3
For a full career (20 years minimum) 4
Have not decided 5

76. What do you plan to do when you get out of the Armed Forces?

(Circle one number on each line.)

	Applies to me	Does not apply to me
Full- or part-time work	1	2
College, either full-time or part-time	1	2
Technical, vocational, or business or career training school, either full-time or part-time	1	2
Registered apprenticeship or on-the-job training program	1	2
Retire	1	2
Undecided	1	2
Other (please specify: _____)	1	2

Section E — Information About The Past

77. Have your (a) parents or guardians or have your (b) friends your own age either encouraged or discouraged you in doing the following things since you left high school?

(a) PARENTS OR GUARDIANS (Circle one number on each line.)					(b) FRIENDS YOUR OWN AGE (Circle one number on each line.)			
Encouraged	Discouraged	Both	Neither		Encouraged	Discouraged	Both	Neither
1	2	3	4	Getting a job or going to work	1	2	3	4
1	2	3	4	Going to school for vocational or technical training	1	2	3	4
1	2	3	4	Going to college for an academic education	1	2	3	4
1	2	3	4	Getting married	1	2	3	4
1	2	3	4	Entering the Armed Forces	1	2	3	4
1	2	3	4	Traveling or taking a break	1	2	3	4

78. What is the highest educational level completed by your mother and father? If you are not sure, please give your best guess.

(Circle one number on each line.)

	None or grade school only	High School		Vocational, trade, business, or career program in a school or college		Academic programs			
		Did not finish	Finished	Less than two years	Two years or more	Some college (including two-year degree)	Finished college (four-or five-year degree)	Master's degree or equivalent	Ph. D., M.D., or equivalent
Father or male guardian	1	2	3	4	5	6	7	8	9
Mother or female guardian	1	2	3	4	5	6	7	8	9

79. Please describe below the job most recently held by your father (or male guardian), even if he is retired, deceased, or disabled.

a. For **whom** does (or did) he work? (Name of company, business, organization, or other employer)

(Write in): _____

b. What **kind of business** or industry is (or was) this? (For example, retail store, manufacturer, state or city government, farming, etc.)

(Write in): _____

c. What kind of **job or occupation** does (or did) he have in this business or industry? (For example, salesman, foreman, policeman, civil engineer, farmer, teacher)

(Write in): _____

d. What are (or were) his most frequent **activities or duties** on this job? (For example, selling cars, keeping accounts, supervising others, operating machinery, finishing concrete, teaching grade school)

(Write in): _____

80. Did your mother (or female guardian) usually work during the following periods of your life?

(Circle one number on each line.)

	Did not work	Worked part-time	Worked full-time	Does not apply
When you were in high school	1	2	3	4
When you were in elementary school	1	2	3	4
Before you went to elementary school	1	2	3	4

81. Did you formally apply for admission (fill out a form and send it in) to any college or other school at any time before October 1973?

No ..... 1 — *(SKIP to q. 85) Next page* →
Yes 2

82a. When you first applied, what was the name and address of the FIRST school or college of your choice?

Name: _____
Address: _____
(city) (state)

82b. Were you accepted for admission at this school?

(Circle one.)

Yes, and attended 1
Yes, but this school did not have enough room 2
Yes, but did not attend for other reasons 3
No, was not accepted 4

82c. Did you apply for financial aid at this school?

(Circle one.)

No 1
Yes, but was offered no financial aid ..... 2 } — *(SKIP to q. 83a)*
Yes, and was offered financial aid 3

82d. What were the approximate values of the financial aid that you were offered for the first academic year? (If none, enter "none")

Scholarship: $_____ Loan: $_____ Promised job: $_____

83a. At that time, what was the name and address of your SECOND CHOICE school or college?

I applied to only one school ..... 1 — *(SKIP to q. 85) Next page* →

Name: _____
Address: _____
(city) (state)

83b. Were you accepted for admission at this school?

(Circle one.)

Yes, and attended 1
Yes, but this school did not have enough room 2
Yes, but did not attend for other reasons 3
No, was not accepted 4

83c. Did you apply for financial aid at this school?

(Circle one.)

No 1
Yes, but was offered no financial aid 2
Yes, and was offered financial aid 3

(SKIP to q. 84a)

83d. What were the approximate values of the financial aid that you were offered for the first academic year? (If none, enter "none")

Scholarship: $_____ Loan: $_____ Promised job: $_____

84a. At that time, what was the name and address of your THIRD CHOICE school or college?

I applied to only two schools ..... 1 — *(SKIP to q. 85)*

Name: _____

Address: _____
(city) (state)

84b. Were you accepted for admission at this school?

(Circle one.)

Yes, and attended 1
Yes, but this school did not have enough room 2
Yes, but did not attend for other reasons 3
No, was not accepted 4

84c. Did you apply for financial aid at this school?

(Circle one.)

No 1
Yes, but was offered no financial aid 2
Yes, and was offered financial aid 3

(SKIP to q. 85)

84d. What were the approximate values of the financial aid that you were offered for the first academic year? (If none, enter "none")

Scholarship: $_____ Loan: $_____ Promised job: $_____

85. How helpful were your high school's counseling services in each of the following areas?

(Circle one number on each line.)

	Services NOT available	Services available but NOT consulted	SERVICES CONSULTED AND... Very helpful	Helpful	NOT helpful
Learning how my interests and abilities fit with different jobs or occupations	1	2	3	4	5
Finding out where to train for the job or occupation I wanted	1	2	3	4	5
Placing me in a job or helping me to find employment	1	2	3	4	5
Finding out the schools or colleges I qualified for which suited my abilities and interests	1	2	3	4	5
Finding out about costs at different schools or colleges and how to obtain financial aid	1	2	3	4	5
Obtaining financial aid to go to school or college	1	2	3	4	5
Recommending fields of work likely to have expanding employment opportunities	1	2	3	4	5

86. Which of the following best describes your high school program?

(Circle one.)

- General 1
- Academic or college preparatory 2
- Vocational or technical:
  - Agricultural occupations 3
  - Business or office occupations 4
  - Distributive education 5
  - Health occupations 6
  - Home economics occupations 7
  - Trade or industrial occupations 8

87. Which of the following best describes how well you did in all of your course work while in high school?

(Circle one.)

- Mostly A (a numerical average of 90-100) 1
- About half A and half B (85-89) 2
- Mostly B (80-84) 3
- About half B and half C (75-79) 4
- Mostly C (70-74) 5
- About half C and half D (65-69) 6
- Mostly D (60-64) 7
- Mostly below D (below 60) 8

88. When you were a senior in high school, how many hours per week on the average did you work in a paid or unpaid job? Do NOT include work while in a vacation period.

(Circle one.)

- None 0
- Less than 6 hours 1
- 6 to 10 hours 2
- 11 to 15 hours 3
- 16 to 20 hours 4
- 21 to 25 hours 5
- 26 to 30 hours 6
- More than 30 hours 7

89. When you were a senior in high school, did you participate in any of the following types of activities, either in or out of school?

(Circle one number on each line.)

	Did NOT participate	Participated actively	Participated as a leader or officer
Athletic teams, intramurals, letterman's club, sports club	1	2	3
Cheerleaders, pep club, majorettes	1	2	3
Debating, drama, band, chorus	1	2	3
Hobby clubs such as photography, model building, hot rod, electronics, crafts	1	2	3
Honorary clubs such as Beta Club or National Honor Society	1	2	3
School newspaper, magazine, yearbook, annual	1	2	3
School subject matter clubs such as science, history, language, business, art	1	2	3
Student council, student government, political club	1	2	3
Vocational education clubs such as Future Homemakers, Future Teachers, Future Farmers of America, DECA, OEA, FBLA, or VICA	1	2	3

90. When did you first decide whether or not you would go to college?

(Circle one.)

I decided before the 10th grade 1
I decided in the 10th grade 2
I decided in the 11th grade 3
I decided in the 12th grade (senior year) 4
I decided after leaving high school 5
I'm still undecided 6

91. When you were still a senior in high school, what did most of your close friends plan to do after finishing high school?

(Circle one.)

Enter the military service 1
Go to vocational, technical, business, or trade schools 2
Become full-time homemakers 3
Go to college 4
Enter apprenticeships or on-the-job training programs 5
Go to work full-time 6
I don't know 7
Other 8

92. As far as you remember, when you were a senior in high school, how much schooling did your father or mother (or guardian) want you to get?

(Circle one number on each line.)

	Don't know, or Does not apply	High School		Vocational, trade, business, or career program in a school or college		Academic programs			
		NOT finish	Finish	Less than two years	Two years or more	Some college (including two-year degree)	Finish college (four-or five-year degree)	Master's degree or equivalent	Ph. D., M.D., or equivalent
Father or male guardian	1	2	3	4	5	6	7	8	9
Mother or female guardian	1	2	3	4	5	6	7	8	9

93. What is the approximate income before taxes of your parents (or guardian)? Include taxable and nontaxable income from all sources.

(Circle one.)

Less than $3,000 a year (about $60 a week or less) 01
Between $3,000 and $5,999 a year (from $60 to $119 a week) 02
Between $6,000 and $7,499 a year (from $120 to $149 a week) 03
Between $7,500 and $8,999 a year (from $150 to $179 a week) 04
Between $9,000 and $10,499 a year (from $180 to $209 a week) 05
Between $10,500 and $11,999 a year (from $210 to $239 a week) 06
Between $12,000 and $13,499 a year (from $240 to $269 a week) 07
Between $13,500 and $14,999 a year (from $270 to $299 a week) 08
Between $15,000 and $18,000 a year (from $300 to $359 a week) 09
Over $18,000 a year (about $360 a week or more) 10

94. Do your parents have the following in their home?

(Circle one number on each line.)

	Yes	No
A specific place for study	1	2
Daily newspaper	1	2
Dictionary	1	2
Encyclopedia or other reference books	1	2
Magazines	1	2
Record player	1	2
Tape recorder or cassette player	1	2
Color television	1	2
Typewriter	1	2
Electric dishwasher	1	2
Two or more cars or trucks that run	1	2

95. How do you describe yourself?

(Circle one.)

American Indian 1
Black or Afro-American or Negro 2
Mexican-American or Chicano 3
Puerto Rican 4
Other Latin-American origin 5
Oriental or Asian-American 6
White or Caucasian 7
Other 8

96. Is English the language spoken most often in your parents' home?

Yes 1
No 2

97. What religion were you brought up in?

(Circle one.)

Protestant 1
Roman Catholic 2
Other Christian 3
Jewish 4
None 5
Other (please specify _____) 6

98. When you were a senior in high school which of the following best described the location of the place in which you lived?

(Circle one.)

In a rural or farming community 1
In a small city or town of fewer than 50,000 people that is not a suburb of a larger place 2
In a medium-sized city (50,000-100,000 people) 3
In a suburb of a medium-sized city 4
In a large city (100,000-500,000 people) 5
In suburb of a large city 6
In a very large city (over 500,000 people) 7
In a suburb of a very large city 8

99. During your senior year in high school did you have a physical condition that limited the kind and amount of work you could do on a job?

Yes 1
No 2

The OPERATION FOLLOW-UP staff would like to get in touch with you again next year to find out how your plans have worked out. To help us do so, we would appreciate your filling in the information on the next page. This information will be kept in strict confidence and will only be used for future survey purposes.

Section F — Background Information

Please PRINT the name, address, and telephone number where you can most usually be reached during the coming year.

Name:		
Address (number, street, city, state and ZIP code)	Telephone	
	Area Code	Number

Please PRINT the name, address and telephone number of your parents.

Name:		
Address (number, street, city, state and ZIP code)	Telephone	
	Area Code	Number

Please PRINT the names and addresses of two other people who will know where to get in touch with you during the coming year. (List no more than one person who now lives with you.)

Name:		
Address (number, street, city, state and ZIP code)	Telephone	
	Area Code	Number

Name:		
Address (number, street, city, state and ZIP code)	Telephone	
	Area Code	Number

Please give the following information about yourself.

(a) Date of birth _____ (month) _____ (day) _____ (year)

(b) Sex: (Circle one.) Male.....1
Female.....2

(c) Social Security No. _____

(d) Driver's License No. _____ State _____

(e) When did you complete this questionnaire? _____(month)_____(day)_____(year)

THANK YOU FOR YOUR COOPERATION

THIS INFORMATION WILL BE KEPT IN STRICT CONFIDENCE AND WILL BE USED ONLY FOR FUTURE FOLLOW-UPS IN THE NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972

Appendix D

SURVEY MATERIALS TO MAXIMIZE PARTICIPATION

OPERATION FOLLOW-UP

NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972

Volume 1, Number 2
September 1973

National Center for Educational Statistics
Washington, D. C. 20202

What's Happening to the Class of '72?

Did you know that in the spring of last year, a representative nationwide sample of the High School Class of 1972 told the U.S. Office of Education that:

- 26% planned to begin work full-time upon completion of their senior year in high school?
- 58% planned to continue their education in college or vocational training schools?
- 44% reported that their parents had a great deal of influence on their plans for after high school, while 25% reported that friends their own age also had a great deal of influence on their plans?

Would you like to know more? We'll be glad to tell you everything you've always wanted to know about the class of '72 if you'll tell us WHERE YOU ARE and WHAT YOU'RE DOING. To help us in this effort, we'd like you to fill out the first follow-up questionnaire, which will be coming to you in October.

Read on to find out what OPERATION FOLLOW-UP is all about!

WHAT'S IT ALL ABOUT?

During 1972 over three and one-half million students were enrolled as seniors in high schools in the United States. You, however, are a special member of the class of 1972--you are part of a nationwide survey of educational and occupational experiences of a sample of more than 20,000 members of the 1972 high school class.

The high school you attended during your senior year was one of 1,200 schools chosen to represent all secondary schools across the United States. *Your* school gave us the names of members of your senior class, and 18, including you, were chosen at random to represent all the students in your senior class. Even though your experiences and activities during the past year are unique to you, the types of things you have been doing are representative of similar experiences and activities shared by your fellow classmates across the nation. You and the other members of OPERATION FOLLOW-UP, therefore, are the voice of all students in the class of '72.

WHY ME?

We want you to join other members of the class of '72 in telling us what has happened to you since you left high school. The fact that you are working, married, in college, in military service, or training for a job is important in relation to your educational background, your goals while you were in high school, and your goals and accomplishments now and in the future.

KEEP US POSTED During this period of your life you are probably "on the go" as much as you will ever be. In order for us to have your current address for our fall mailing, please take a moment and fill out the enclosed postcard and return it to us as soon as possible. Thank you.

This important study, the *National Longitudinal Study of the High School Class of 1972*, is sponsored by the United States Office of Education, and it is an attempt to find out what happens to seniors after they leave high school. The first phase of this study was conducted in the spring of 1972 when a nationwide sample of high school seniors completed a questionnaire concerning their attitudes, educational plans, and career and personal goals.

OK, SO WHAT NOW?

In October of this year, you will be sent a questionnaire asking you about what you are doing and what you plan to do within the next year. You will also be asked to evaluate many aspects of your high school education and how well it has served you thus far.

Your answers to these questions will make it possible to compare the plans and attitudes of high school seniors in the class of 1972 with their present activities, attitudes, and plans. Information of this type is valuable to planners and policy makers in improving the educational system by making it more responsive to students and their needs.

All of the information we obtain is treated in strictest confidence. Your name will never be published, released to anyone other than researchers working on the study, or associated in any way with the information you provide us. Your responses will be analyzed and used in statistical summaries to provide information much like that shown on page one of this newsletter.

WHY SHOULD I DO THIS?

Your participation in the National Longitudinal Study is strictly voluntary, but your cooperation is very important. We are interested in you and what you are doing. Even if every other selected member of the class of '72 participates in the study, without your completed questionnaire we will still be missing some valuable information which only you can provide.

This is your chance to tell us what's good–and what's not so good–about the education you received, the preparation you received for work or college, and the things that have happened to you since you left high school. Such information can help improve schools and school programs–perhaps for your brothers and sisters, and someday, for your own children.

WHO'S DOING THIS STUDY?

The National Longitudinal Study of the High School Class of 1972 is sponsored by the U.S. Office of Education of the Department of Health, Education, and Welfare. It is being conducted by the U.S. Bureau of the Census and the Research Triangle Institute (RTI). RTI is a not-for-profit contract research organization located in North Carolina's Research Triangle Park.

WANT MORE INFORMATION?

We will be sending you several newsletters like this during the coming years to let you know what's going on and what we're learning about the class of '72. Be sure to give us your correct address so that we won't miss you. If you have any questions about your participation in the National Longitudinal Study, please write us at the address given below:

OPERATION FOLLOW-UP
Research Triangle Institute
Post Office Box 12194
Research Triangle Park, North Carolina 27709

RESEARCH TRIANGLE INSTITUTE
POST OFFICE BOX 12194
RESEARCH TRIANGLE PARK, NORTH CAROLINA 27709

CENTER FOR EDUCATIONAL RESEARCH AND EVALUATION

Dear OPERATION FOLLOW-UP Participant:

Thank you for completing the First Follow-Up Questionnaire of the *National Longitudinal Study of the High School Class of 1972*. Each person in the sample for this survey represents thousands of others, and so your cooperation is very important. You contributed valuable information toward understanding what is happening to the Class of '72.

We expect to send you a Class of 1972 Identification Card attached to a handy change-of-address postcard. You can use the postcard to notify us if you move. Later a Newsletter containing some of the preliminary results of this phase of the project will be coming to you. Look for these in your mail.

Remember--we are grateful for your past help and look forward to your continued cooperation.

Thanks again for your interest and participation in OPERATION FOLLOW-UP.

Sincerely,

J. A. Davis
Project Director

JAD:fh

(919) 549-8311 FROM RALEIGH, DURHAM AND CHAPEL HILL

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

Dear Member of the High School Class of 1972:

About three weeks ago you should have received a large air mail envelope containing an OPERATION FOLLOW-UP Questionnaire Booklet. This questionnaire is for you to use in telling us about your achievements and experiences since leaving high school.

As of today, your completed questionnaire has not been received. Just in case you never got it or have misplaced it, I am sending you another.

Please take a little time now to fill out the questionnaire. As best you can, simply answer each question which fits you. Omit any items that don't apply to you. When you have answered as many of the items as you can, put your completed booklet in the pre-paid envelope we have provided, and drop it in the mail. No stamp is necessary--any mailbox will do.

I deeply appreciate your help. Your answers are important in helping us learn how to improve the educational and vocational opportunities for the young people of today and tomorrow.

Sincerely,

Dorothy M. Gilford

Dorothy M. Gilford
Assistant Commissioner for
Educational Statistics

DMG:fh

Enclosure

16 RESEARCH TRIANGLE PARK
ZIP 27511

MR. DON A KING
1005 DANGLEWOOD DRIVE
CARY, N.C. 27511

AS A MEMBER OF THE NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972 YOU ARE VERY IMPORTANT TO US. IN LATE OCTOBER WE SENT YOU AN OPERATION FOLLOW-UP QUESTIONNAIRE AND IT HAS NOT YET BEEN RETURNED. YOUR COOPERATION AND PARTICIPATION IS VITAL TO THE SUCCESS OF THIS STUDY, PLEASE SIT DOWN TODAY, FILL OUT YOUR QUESTIONNAIRE AND MAIL IT BACK TO US.

IF YOU HAVE LOST YOUR QUESTIONNAIRE CALL US COLLECT AT (919) 549-8311 AND IDENTIFY YOURSELF AS AN OPERATION FOLLOW-UP RESPONDENT. WE WILL THEN SEND YOU ANOTHER QUESTIONNAIRE.

PLEASE HURRY. WE ARE WAITING TO HEAR FROM YOU.

JAY DAVIS
PROJECT DIRECTOR

1754 EST

MGMGBOB GBO

101 RESEARCH TRIANGLE PARK NC
ZIP 27511

MR D A KING
1005 DANGLEWOOD DRIVE
CARY NC 27511

YOUR PARTICIPATION IN THE NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972 IS VERY IMPORTANT AND YOUR COOPERATION IS VITAL TO THE SUCCESS OF THIS STUDY. BUT WE HAVE NOT YET RECEIVED YOUR COMPLETED OPERATION FOLLOW-UP QUESTIONNAIRE. PLEASE FILL OUT YOUR QUESTIONNAIRE TODAY AND MAIL IT BACK TO US.

IF YOU HAVE LOST YOUR QUESTIONNAIRE CALL US COLLECT AT (919) 549-8311 AND IDENTIFY YOURSELF AS AN OPERATION FOLLOW-UP PARTICIPANT. WE WILL SEND YOU ANOTHER QUESTIONNAIRE.

PLEASE HURRY. WE ARE WAITING TO HEAR FROM YOU.

J. A. DAVIS
PROJECT DIRECTOR

13:53 EST

MGMGBOT HSA

MGMGBOT MSA
1-12[illegible]0346015 12/14/73
ICS MGMCSA OPEN
01772 MLTN VA
ZIP 27511

Western Union

DONALD A. KING 805606
1005 TANGLEWOOD DR
CARY, NC 27511

YOU ARE IMPORTANT TO US!

SO ARE YOUR ACTIVITIES AND EXPERIENCES SINCE LEAVING HIGH SCHOOL. THAT IS WHAT THE NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972 IS ALL ABOUT.

FILL OUT YOUR OPERATION FOLLOW-UP QUESTIONNAIRE TODAY. YOUR COOPERATION IS VITAL AND YOUR ANSWERS WILL BE TREATED CONFIDENTIALLY.

IF YOU HAVE QUESTIONS OR CONCERNS ABOUT THE STUDY, OR HAVE LOST YOUR QUESTIONNAIRE, WE WILL HELP YOU. CALL US COLLECT AT (919) 549-8311, AND IDENTIFY YOURSELF AS AN OPERATION FOLLOW-UP PARTICIPANT.

PLEASE HURRY.

J. A. DAVIS
PROJECT DIRECTOR

01:46 EST

MGMGBOT MSA

My name and address are:

☐ Both OK as printed

☐ Correct my name to: _____

☐ Correct my address to: _____

_____

My address on October 1, 1973 will be: (☐ Check here if same as indicated above.)

_____

_____

NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972

A Survey Sponsored by the U.S. Office of Education

Have you forgotten something?

We haven't received your OPERATION FOLLOW-UP questionnaire yet. Have you filled it out and mailed it back? *Please* sit down, fill out your questionnaire, and tell us what's happening—we want to hear from *you*.

If you have lost or misplaced your questionnaire, please put this card in an envelope and mail it to:

OPERATION FOLLOW-UP
Research Triangle Institute
Box 12194
Research Triangle Park, N.C. 27709

We'll send you another questionnaire!

NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972

A Survey Sponsored by the U.S. Office of Education

Just a reminder . . .

Last week we mailed you an OPERATION FOLLOW-UP questionnaire.

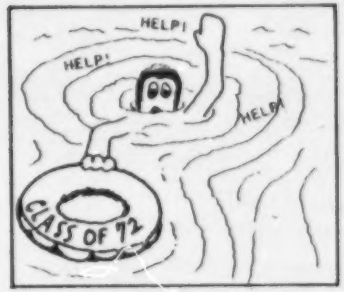
If you *have* completed and returned your questionnaire, thank you—many of your classmates also have.

If you *have not* returned your questionnaire, please sit down, fill out your questionnaire, and mail it back to us *today*. Only you can tell us what's happening to the Class of '72. Don't miss your chance!

218

NATIONAL LONGITUDINAL STUDY OF THE HIGH SCHOOL CLASS OF 1972

A Survey Sponsored by the U.S. Office of Education



We know you have heard from us several times and we really don't want to bug you—BUT—we really do need your help. Please fill out your OPERATION FOLLOW-UP Questionnaire and mail it today. Your cooperation is vital to the success of this study and your participation will help to improve our educational system.

Don't let our study drown—throw us a life preserver!

219

We want and need your continued interest and participation in OPERATION FOLLOW-UP. The address on the Membership Card is the current mailing address we have for you.

If this address is not correct, or when you move or get married, write your new name and/or address in the space provided, and drop the card in the mail to us.

We will send you a new OPERATION FOLLOW-UP Membership Card.

OPERATION FOLLOW-UP
Research Triangle Institute
Box 12036
Research Triangle Park
North Carolina 27709

FIRST CLASS
Permit No. 593
Research Triangle Park,
North Carolina

Here is your OPERATION FOLLOW-UP Membership Card. Detach it and keep it with you--it identifies you as a special member of the High School Class of 1972.

You have been assigned a six-digit identification number (to the right of your name) which allows us to protect the confidentiality of your answers to OPERATION FOLLOW-UP questionnaires. Check your ID number against any further newsletters and questionnaires you receive. If you need to contact us in regard to OPERATION FOLLOW-UP, be sure to use your ID number when you call or write.

Your answers to OPERATION FOLLOW-UP questionnaires are a valuable contribution to the review of the process of educating young people in the United States. Thank you for your willingness to participate in OPERATION FOLLOW-UP.

↑ DETACH HERE ↑

☐ Correct my name to:

☐ Correct my address to:

_____

_____

_____

FOLD ALONG DOTTED LINE

NATIONAL LONGITUDINAL STUDY
OF THE
HIGH SCHOOL CLASS OF 1972

A project of the
UNITED STATES OFFICE OF EDUCATION

OPERATION FOLLOW-UP MEMBERSHIP CARD